

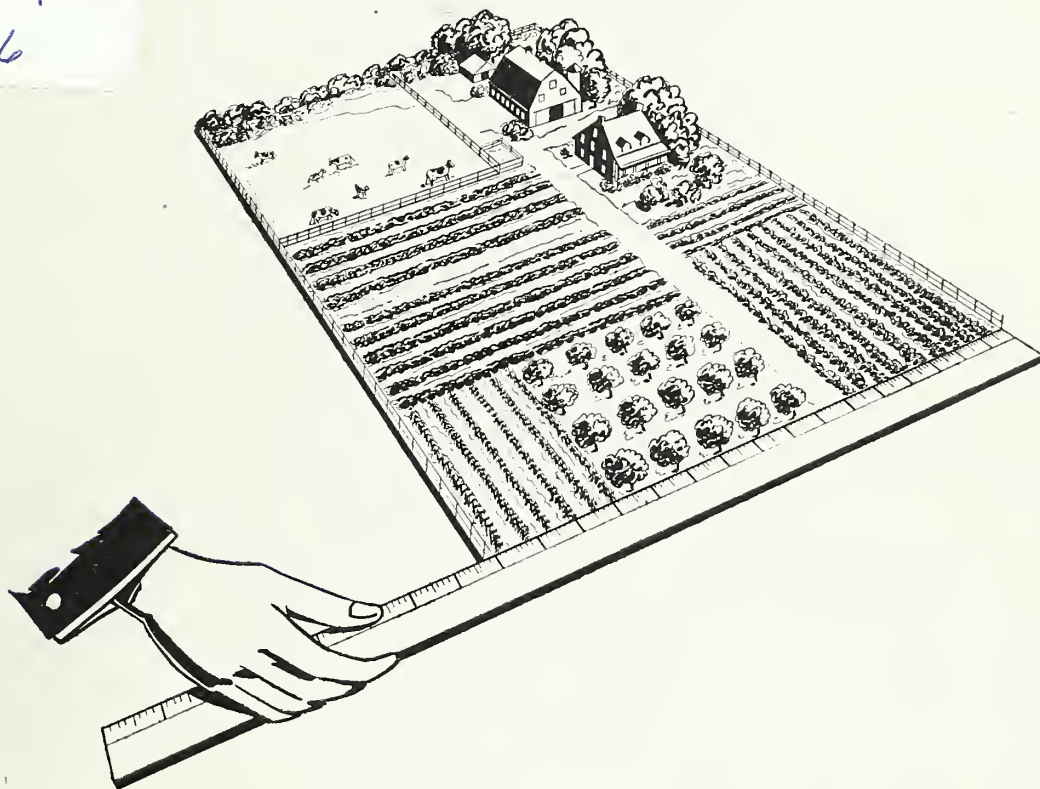
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PEACETIME ADJUSTMENTS IN FARMING

POSSIBILITIES UNDER PROSPERITY CONDITIONS

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PREFACE

This study of peacetime adjustments in farming is the product of cooperative work by the land-grant colleges and the Department of Agriculture. Back of this national summary are 48 State reports each representing careful work by a State Production Adjustment Committee—including in its membership production specialists, agricultural economists, extension workers, State statisticians, and other State and Federal agricultural workers who are thoroughly familiar with agricultural conditions in that State.

The State-by-State appraisals of postwar farming possibilities under prosperity conditions were carried out by the same committees that have analyzed wartime production potentialities year by year. The information developed for the wartime studies served as background for the longer term analysis, 1943 being taken as representative of the war years. The following National Review Committee on Wartime Production Adjustments served as a review committee for this postwar study, which was undertaken as one of the activities of the Regional and National Interbureau Committees on Postwar Programs:

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This appraisal of postwar farming possibilities under prosperity conditions indicates the great potential productive capacity of our agricultural plant. It emphasizes the necessity for a high level of consumption for agricultural products after the war if farmers are to be prosperous and if agricultural resources are to be efficiently utilized. Full employment, a high level of industrial activity, and a large volume of international trade are essential to achievement of the prosperity conditions that would provide a high-level consumption of agricultural products and market outlets for the potential production.

The level and pattern of postwar production presented in this report can be completely misleading if interpreted as a forecast of what will occur under any degree of economic prosperity that may prevail. The first section of the report (pages 1-9) should be read very carefully to appreciate the purposes of the study, the conditions under which the work was conducted and the limitations of the estimates that have been made.

Part I of this report contains a general summary of the study and the principal conclusions. Parts II and III provide more detail for those who are interested in suggested adjustments by commodities. In addition to this narrative summary a statistical supplement is available in mimeographed form which summarizes the quantitative estimates by groups of States and for the Nation as a whole. A copy of this summary may be obtained by writing to the Bureau of Agricultural Economics, United States Department of Agriculture, Washington 25, D. C.

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PEACETIME ADJUSTMENTS IN FARMING

I. BACKGROUND

Farmers in the United States have rounded out 4 years of full-scale production for war. The adjustments—some good, some bad—that were necessary to achieve wartime levels of agricultural production have been felt with increasing force in each succeeding year. In many instances they have resulted in wide differences from prewar systems of farming—differences both in the emphasis given to certain farm enterprises and in the production practices involved. They have often added to the physical burden of farmers and farm workers. It is time to consider the meaning for postwar years of these war-induced changes.

What will be needed to develop an optimum level of soil fertility; and, once developed, to maintain the physical resource upon which the agriculture is based? How can farms be organized and operated to achieve high and stable farm incomes, and satisfactory levels of living? What guides can be developed that will indicate the kinds of adjustments it would pay farmers to make in achieving these objectives? How many farms and how many farm workers will agriculture need? Consideration of these questions can best be visualized in terms, not of next year, but of a somewhat longer look ahead—a look beyond the period of transition, to a time when farms can be operated in an economy of peace.

Such looks ahead are admittedly difficult and, in fact, impossible except in terms of specific assumptions regarding conditions that could then prevail. *The results of such work are in no sense forecasts of what will come to pass, but by indicating what it would pay farmers to do under the assumed conditions they serve as postwar bench marks—reference points, indicating the direction and general extent of needed adjustments for intervening years.* As such, they have value for shaping educational and operations programs for the years ahead. Achievement of the bench marks summarized in this report involves more rapid adoption of improved practices than our previous progress in peacetime. If adoption of improvements is not accelerated the bench-mark levels will not be attained.

During 1944, Production Adjustment Committees in each State studied these and other problems relating to agriculture after the war and prepared State reports, which are here summarized on a national basis. The Production Adjustment Committee in each State is composed of technical workers in the land-grant colleges—men trained in the sciences of crop and livestock production and those familiar with the organization and operation of the farm business—together with State representatives of Federal agencies interested in agriculture.

During the war years, these committees have provided, annually, production information that has been used in developing the Nation's agricultural goals of the year ahead and in planning for their attainment. They are familiar with the technological advances that have been made in crop and livestock production in recent years—with improved varieties of crops that provide higher yields and greater resistance to disease, with new methods of controlling crop pests and livestock diseases, with the possibilities in fertilizing crops and in feeding livestock more efficiently. With this background, these committees are well qualified to appraise the efficiency of current agricultural production and to indicate the adjustments it would pay farmers to make under specified postwar conditions.

Obviously, adjustments called for under conditions of continuing prosperity would differ from those which it would pay farmers to make if the situation were considerably less favorable. It would be desirable, therefore, to explore the alternatives open to American farmers under more than one set of assumptions. Some State Committees have done that as a part of this study. The results are given later in this report. But interest in all sectors of our economy—in industry as well as in agriculture—centers currently in the problem of maintaining full employment and continued prosperity and what this would mean in terms of national production and consumption. Consequently, major emphasis in these studies has been placed on developing a picture of agriculture under prosperity conditions and all States have reported on this basis for the postwar bench-mark estimates summarized in this report.

Each State Production Adjustment Committee was provided with the same framework of assumptions, to promote uniformity in approach to the study. It is obvious, in an undertaking of this character, that the basis upon which estimates are made will vary from State to State. Statistical data on acres of crops, numbers of livestock, and production of crop and livestock products are always available by States and this information can usually be analyzed for smaller areas having similar production problems and opportunities. Satisfactory information on the current degree of adoption of specific production practices and on the limits to which they could profitably be extended are everywhere more difficult to obtain. Furthermore, the background of production specialists, who are members of the State Production Adjustment Committees, influences the contribution they are able to make in estimating future possibilities. In States where crops are customarily fertilized, agronomists are more fully aware

of fertilizer potentialities than in States where it has been but little used. Similarly, the best estimates of the effect of more widespread adoption of improved methods of feeding dairy cows are likely to be made in those States where dairying is an important enterprise and experimental data are available.

Each State Committee worked independently and some States held more rigidly to the assumed prices than did others in making postwar bench-mark estimates. National summarization indicates that, for some commodities, farmers' response to levels suggested as profitable might result in greater production than the market could absorb at the prices assumed. These trouble spots are pointed out in subsequent discussion. These estimates, then, should be considered as first approximations of the potential of the agricultural sector in a national economy geared to full production. They fit into a setting of full employment, high industrial activity, a large volume of international trade, and a high level of national income. The absolute quantities of the bench-mark estimates are probably of less significance than the picture they give of the direction and general extent of adjustments that would be profitable under assumed prosperity conditions. *They are not forecasts of what will come to pass.*

The general assumptions underlying postwar prosperity conditions are defined as shown in table 1. Even under an assumption of full employment, about 2 million workers would be unemployed. These are persons transferring from one job to an-

TABLE 1.—*Framework assumptions for production-adjustment study*¹

| Item | Base | 1935-39 | 1943 | Postwar bench mark ² |
|--|---------------|---------|-------|---------------------------------|
| Total population (Million) | | 128.6 | 135.6 | 144.0 |
| Total civilian employment (Million) | | 43.3 | 52.4 | 55.5 |
| Total unemployment (Million) | | 10.2 | 1.1 | 2.0 |
| National income (Billion dollars) | | 65.4 | 147.9 | 150.0 |
| Cash income from farm marketings (Billion dollars) | | 8.0 | 19.2 | 16.5 |
| Wholesale prices, all commodities. 1926 = 100 | 1926 = 100 | 81.0 | 103.0 | 103.0 |
| Prices received by farmers | 1910-14 = 100 | 107.0 | 193.0 | 160.0 |
| Prices paid by farmers ³ | 1910-14 = 100 | 128.0 | 162.0 | 165.0 |

¹ Data are shown here exactly as they were supplied to the State Production Adjustment Committees at the beginning of this study, as a basis for their estimates. Because of minor revisions made later, these data do not correspond in all details with the revised data released by the U. S. Department of Agriculture in Miscellaneous Publication 562, *What Peace Can Mean to the American Farmer: Postwar Agriculture and Employment*.

² Assumed to be 1950 where a date is essential to the analysis.

³ All commodities, including interest and taxes.

other or otherwise temporarily idle because of the seasonal nature of their work. The general price level assumed for a prosperous postwar period is about the same as for 1943, with prices received by farmers about 17 percent lower, and those paid by farmers for nonagricultural products only slightly (2 percent) higher than in 1943. Cash income from farm marketings, although somewhat lower than in wartime, would still be more than twice as high as in 1935-39. With a larger volume of production per farm and increased use of improved practices, costs would be lower and net income per farm would probably approach wartime levels.

Within this framework of general assumptions, the Bureau of Agricultural Economics estimated the quantities of each farm product that could be marketed at farm prices associated with a national income of 150 billion dollars. Trends in population, in consumption rates and habits, in exports and imports, and needs for feed, seed, industrial, and other uses were considered in developing these estimates. The relation of the price of one farm commodity to that of a competing product was considered in estimating farm prices, as were changes in technology that might alter future price relationships. Primary emphasis was placed on the price series

TABLE 2.—*Full employment interpreted in terms of average United States farm prices for selected commodities, postwar bench mark, with comparisons*¹

| Farm product | Unit | 1935-39 | 1943 | Postwar bench mark ² |
|---|---------------|----------------|----------------|---------------------------------------|
| | | <i>Dollars</i> | <i>Dollars</i> | <i>Dollars</i> |
| Crops: | | | | |
| Soybeans | Bushel | 0.87 | 1.81 | 1.70 |
| Flaxseed | Bushel | 1.65 | 2.84 | 2.25 |
| Peanuts | Pound | .034 | .071 | .05 |
| Cotton, all.... | Pound | .10 | .20 | .13 |
| Potatoes | Bushel | .70 | 1.38 | 1.20 |
| Tobacco, all... | Pound | .195 | .40 | .34 |
| Wheat | Bushel | .82 | 1.33 | 1.10 |
| Dry beans | Hundredweight | 3.43 | 6.01 | 4.70 |
| Corn | Bushel | .65 | 1.12 | .90 |
| Sorghum, grain | Bushel | .58 | 1.16 | .80 |
| Livestock and livestock products: | | | | |
| Hogs | Hundredweight | 8.30 | 13.70 | 11.25 |
| Beef cattle.... | Hundredweight | 6.51 | 11.80 | 10.25 |
| Veal calves... | Hundredweight | 7.75 | 13.50 | 12.00 |
| Lambs | Hundredweight | 7.81 | 12.90 | 11.45 |
| Wool | Pound | .24 | .42 | .40 |
| Chickens, live.. | Pound | .15 | .24 | .20 |
| Milk (whole- sale) | Hundredweight | 1.81 | 3.14 | 3.10 |
| Butterfat | Pound | .29 | .50 | .54 |
| Eggs | Dozen | .21 | .37 | .29 |

¹ Data are shown here exactly as they were supplied to the State Production Adjustment Committees at the beginning of this study, as a basis for their estimates. Because of minor revisions made later, these data do not correspond in all details with the revised data released by the U. S. Department of Agriculture in Miscellaneous Publication 562.

² Assumed to be 1950 where a date is essential to the analysis.

developed, the preliminary estimates of quantities being but a means to this end. The past relationship of the State farm price to the United States farm price for each commodity was usually used in the final step of interpreting what full-employment conditions would mean in terms of postwar farm prices for each State. Nationally, these conditions were interpreted to mean the average farm prices shown in table 2 for some of the principal farm products. For 5 of the 10 crops listed in table 2 average United States farm prices were higher during 1925-29 than those assumed for the bench-mark period and for most of the others there is close similarity. Prices of corn and hogs, of beef, veal, and dairy products are somewhat higher than in 1925-29, reflecting the greater responsiveness of these products to the high purchasing power that would accompany the assumed full-employment conditions.

The task undertaken by the State Production Adjustment Committees, then, was essentially that of taking the specific farm prices assumed and estimating the quantities of each product that it would pay farmers to produce—given time enough to adjust to these prices and keeping in mind the twin objectives of restoring and maintaining physical resources and

providing stabilized and satisfactory levels of farm living. The national pattern described in the following section is the composite of many patterns, since most of the work in the States was done on an adjustment-area basis. These are areas in which farming conditions and production opportunities are essentially similar. They therefore lend themselves more readily to careful study than does an entire State. A general cross section of the physical resources of the adjustment area as a whole, and of the economic opportunity and managerial ability of its farmers was kept in mind as the study was developed. The resulting estimates have value as postwar objectives, or bench marks, because they represent careful composite judgments based on research and practical experience, of what it would pay farmers to do under prosperity conditions. As emphasized previously, they do not represent forecasts of what farmers would do if those conditions prevail; but they provide first approximations of the direction and general extent of adjustments that would be profitable to farmers if national income were maintained at a high level and if farmers could count on receiving the prices shown in table 2.

A POSTWAR PRODUCTION BENCH MARK

VOLUME AND NATURE OF POTENTIAL PRODUCTION

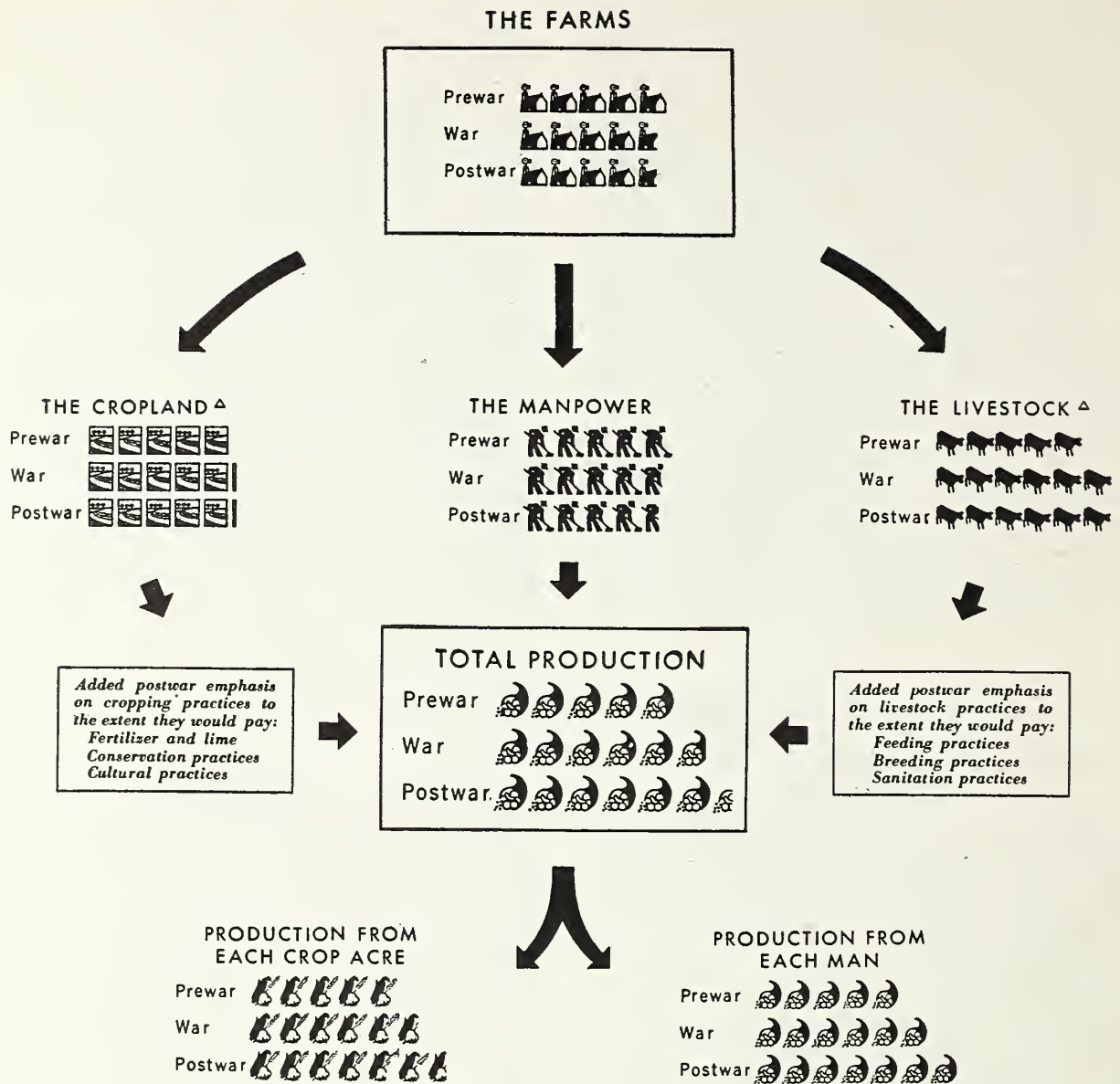
Farmers and farm workers in the United States did a remarkable wartime job in surpassing all previous production records. Still more could have been done if more fertilizer, more improved seeds, and more adequate supplies of labor and machinery had been available. This is clearly indicated by this study of postwar production under conditions of economic prosperity.

With wartime limitations on labor and machinery removed, and stores of production supplies built up, our farm plant will have the capacity to produce at a much higher level than during the war (table 3 and fig. 1). Furthermore this can be done by a fuller use of the production resources available to farmers without much increase in the acreage under cultivation, and at the same time our soils can be restored and improved. Food aplenty after the war is not a production problem. The problem is one of markets, of distribution, and of price relationships. A postwar world that will provide farmers with markets at good prices is the key to the realization of this farm-production potential.

What is the magnitude and nature of this postwar production under prosperity conditions? Measured in terms of annual production (including farm-produced power of horses and mules), the bench mark is a gross farm production one-third greater than the prewar average, one-eighth more than in 1943, and one-twelfth above the record year 1944. With postwar full employment, production of livestock

and livestock products for human use would be half again as large as in the prewar period and 10 percent more than in 1944. Production from croplands and pasture lands in the United States increased by almost one-fourth from the prewar period to 1944; the bench-mark level is one-third higher than the prewar level. Under postwar prosperity conditions, accelerated mechanization of farm operations would reduce horse and mule production to two-thirds its prewar average level. These changes would mean a bench-mark output of farm products for human use 43 percent above the prewar average, 15 percent above 1943 output, and 11 percent above that of 1944. Total United States population will have increased about 12 percent from the prewar to the bench-mark period; thus, bench-mark farm output per capita would be about 28 percent above prewar output.

Almost the entire story of this potential expansion of production is a further increase in crop production per acre—the phenomenon primarily responsible for wartime production increases. The cropland base would remain about at its wartime level, but some important crop shifts are suggested. Through adoption of improved practices that would be profitable for farmers generally by about 1950 under prosperity conditions, crop production per acre could be a third higher than in 1935-39. This compares with a 23-percent step-up from prewar level in crop production per acre in 1944. This postwar bench-mark crop production per acre is especially significant in that it assumes average weather conditions rather than the relatively favorable weather of 1944. Pro-



EACH SYMBOL EQUALS 20 PERCENT OF PREWAR 1935-39 AS 100
^Δ ACRES OF CROPLAND AND ANIMAL UNITS OF ALL LIVESTOCK

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FIGURE 1.—Potential postwar agriculture under prosperity conditions, with comparisons (prewar, 1935-43; war, 1943; postwar, about 1950).

duction would be lower if less progress were made in adoption of improved practices.

These quantities are estimates of what it would *pay* farmers to produce under the conditions assumed. They are not estimates of what farmers *would* produce under those conditions. In contrast, the quantities shown in Miscellaneous Publication No. 562 are estimates of quantities that consumers would purchase and that farmers would be likely to produce on the basis of past production responses.

The improved practices that it would pay farmers

to adopt are discussed in a later section. Suggested profitable increases in fertilizer application—the most important single improved practice—give foundation to the estimated postwar crop-production potential. Table 3 indicates that under postwar conditions of prosperity it would pay many farmers to use more fertilizer and many others to begin its use. If these conditions prevail, farmers could probably use almost four times as much fertilizer as was used on the average in 1935-39 and twice as much as in 1944.

TABLE 3.—*Farm production and related factors, prewar, war, and postwar bench mark*

| Item | Base | Average 1935-39 ¹ | 1943 | 1944 ² | Postwar bench mark |
|-------------------------------------|---------------|---------------------------------|------|-------------------|--------------------------|
| Gross farm production: | | | | | |
| Total ³ | 1935-39 = 100 | 100 | 119 | 124 | 134 |
| Crops and pasture | 1935-39 = 100 | 100 | 116 | 123 | 133 |
| Productive livestock ⁴ | 1935-39 = 100 | 100 | 137 | 135 | 149 |
| Farm-produced power | 1935-39 = 100 | 100 | 85 | 81 | 66 |
| Cropland: | | | | | |
| Total acres ⁵ | 1935-39 = 100 | 100 | 101 | 101 | 101 |
| Crop production per acre | 1935-39 = 100 | 100 | 114 | 123 | 133 |
| Proportion of cropland in: | | | | | |
| Intertilled crops (percent) | | 38.2 | 40.6 | 40.1 | 38.0 |
| Close-growing crops (percent) | | 31.2 | 29.5 | 30.8 | 30.7 |
| Sod crops (percent) | | 17.2 | 18.5 | 18.4 | 22.1 |
| Idle and fallow land (percent) | | 13.4 | 11.4 | 10.7 | 9.2 |
| Fertilizer use: | | | | | |
| Total plant nutrients. | 1935-39 = 100 | 100 | 168 | 179 | 387 |
| Farms: | | | | | |
| Total number ⁶ | 1940 = 100 | 100 | 93 | (7) | 93 |
| Farm employment: | | | | | |
| Annual average num- ber | 1935-39 = 100 | 100 | 94 | 92 | 91 |
| Gross production per farm worker | 1935-39 = 100 | 100 | 127 | 135 | 147 |

¹ Prewar data on number of farms related to 1940.

² Preliminary.

³ This index of annual production includes farm-produced power as a part of total production. The level is somewhat lower than the index of volume of production for sale and for home use. The postwar benchmark index of farm output available for human use, which does not include farm-produced power, is 143 percent of 1935-39. A detailed explanation of the gross farm production and farm output indexes will be presented in Bureau of Agricultural Economics (Processed) Report No. 53, Farm Production in War and Peace.

⁴ Production of livestock and livestock products for human use.

⁵ Total cropland acres are the sum of the estimated acreage of land from which one or more crops were harvested (including wild hay, orchards, vineyards, and farm gardens), plus estimated crop failure and summer fallow acreage.

⁶ Sharecropper units are not counted as separate farms. They are considered as parts of other farms.

⁷ Not available on comparable basis.

The increased yields per acre would not mean a "mining" of the soil. Although the land would yield much more per acre than at present, its supply of plant nutrients would be increased by use of the additional fertilizer, and the cropland use contemplated would be more soil-conserving than the wartime pattern has been. The percentage of cropland in intertilled crops would be reduced, that in close-growing crops would remain the same as in 1944, and the proportion in sod crops would be increased substantially.

Increased efficiency in the production of livestock is also part of the postwar pattern. A bench-mark production of livestock and livestock products for human use 9 percent above that of 1943 could be had without any change in the total number of animal units on farms. Animal units of productive livestock would increase somewhat and a further decline would take place in animal units of horses and mules. Dairy cattle numbers would increase substantially, while numbers of most other classes of livestock would decrease from their high wartime levels. Increased production per animal unit of productive livestock would be important. Bench-mark rate of lay per hen would be 15 percent above

that in 1943 and milk production per cow would be 12 percent higher. More pigs would be saved per litter and a higher percentage calf crop would be obtained. Increased efficiency of feed use would characterize bench-mark production of all classes of livestock. This would include more and better forage per animal, both from cultivated pastures and range lands in the West and South.

The farms needed would be fewer and of larger average size than in prewar years, because of increased mechanization and the use of other improved practices. Desirable shifts include: Fewer but larger commercial family farms; more part-time farms, enabling more people to combine rural living and non-farm work; and fewer self-sufficing farms, a larger percentage of which would be retirement units and homes in the country.

The postwar bench-mark production efficiency is keyed to the estimates of the number of farm workers who could do the job. A postwar farm-employment level 9 percent under the prewar average would mean a gross production per farm worker almost one-half again as great as in prewar years and 9 percent greater than the war year 1944. A farm working force more largely composed of able-bodied men than during wartime and taking advantage of contemplated increases in farm mechanization could do the job without resort to the long hours and fast pace that were necessary in wartime.

SUGGESTED CHANGES IN PRODUCTION

With peacetime full-employment conditions the proposed bench-mark pattern of gross farm production would differ markedly from that prevailing in wartime and in prewar years (table 4). Significant adjustments in the composition of crop production would occur as a result of changes in both acreage and yield. Tobacco production would be one-eighth greater than in 1944, and cotton production one-fifth greater. Sugar production would be about 50 percent above the low wartime level, and one-fourth greater than the prewar average.

A downward adjustment from the wartime peaks is suggested for the oil crops—peanuts, soybeans, and flaxseed. Even so, postwar production of oil crops would be two and one-half times the prewar average. Production of food grains and truck crops, vegetables, fruits, and nuts would all increase at a more rapid rate than total population from 1943 to the postwar period. But the production of food grains would be one-seventh under the 1944 peak output.

Under postwar conditions of economic prosperity, the "feed base" for livestock—feed grains, hay, and pasture—would be somewhat larger than would be needed to feed the suggested numbers of livestock. (See page 41.) Feed grains and hay as a group dominate the gross production-increase possibilities from 1943 to the postwar period, accounting for more than 40 percent of the net increase in total production. Dairy products and cotton account for about 15 percent each; tobacco accounts for about 10 per-

TABLE 4.—*Farm production, by groups of products, war and postwar bench mark compared with prewar*
[Index numbers 1935-39 = 100]

| Item | 1943 | 1944 ¹ | Postwar bench mark |
|---|------|-------------------|--------------------|
| Gross farm production..... | 119 | 124 | 134 |
| Crop and pasture production ² | 116 | 123 | 133 |
| Feed grains and hay..... | 124 | 129 | 146 |
| Food grains | 109 | 139 | 120 |
| All truck crops and vegetables, fruits and nuts.. | 112 | 116 | 121 |
| Sugar crops | 81 | 82 | 127 |
| Cotton and cottonseed... | 87 | 94 | 114 |
| Tobacco | 96 | 126 | 141 |
| Oil bearing crops ³ | 306 | 262 | 248 |
| Livestock production ⁴ | 129 | 127 | 137 |
| Dairy products | 114 | 118 | 142 |
| Poultry products | 154 | 151 | 159 |
| Meat animals | 152 | 146 | 155 |
| Farm-produced power.... | 85 | 81 | 66 |

¹ Preliminary.

² Include some miscellaneous crops not included in the listed groups of crops and pasture used by livestock.

³ Soybeans, peanuts, and flaxseed.

⁴ Includes wool and mohair.

cent, as does the group that includes truck crops, vegetables, fruits, and nuts.

Much larger dairy production would be forthcoming. An increase of more than 40 percent above the prewar average and one-fifth above 1944 production would be profitable and could be attained if full industrial activity were maintained. Production of poultry products and meat animals would exceed somewhat their wartime level. The downward trend in production of farm-produced power would be accelerated. In summary, all of our wartime gains in livestock production for food could be retained and

dairy production could be increased by one-fifth over its previous production record.

Under conditions of economic prosperity, the greatest possibilities for increasing production are indicated for the Southern and North Central regions (tables 5 and 6). More than 60 percent of the suggested increase from 1943 to the postwar bench mark would be in the South. Production in the South remained relatively stable in the interwar and war years and southern workers recognize the opportunity for increased production by the use of more lime and fertilizer, better rotations, more feed, and more livestock. About 30 percent of the increase would come in the North Central region. Moderate increases from 1943 are also suggested for the Northeastern and Pacific regions, while the Mountain region would about maintain its 1943 wartime gross farm-production level.

Gross farm production in the South did not increase greatly from its prewar level to 1943; hence postwar bench-mark production in that region would represent a level one-fourth greater than in 1943. The North Central region expanded its gross farm production by one-third during wartime, and postwar bench-mark production would exceed the 1943 level by only 9 percent. But this would mean a higher rate of increase in terms of the prewar base than in the South. Although increases in gross production in the Northeastern region would make only a moderate contribution to the national bench-mark total, a significant percentage increase over the 1943 level would be involved. In the Pacific region the suggested level is less than 5 percent above 1943.

Principal increases in the South would be in dairy products, feed grains and hay, food grains, cotton, tobacco, and truck crops, vegetables and fruits. Feed grains and hay contribute most heavily to the suggested gross-production increases in the region, al-

TABLE 5.—*Farm production, by major regions, war and postwar bench mark compared with prewar*
[Index numbers 1935-39 = 100]

| Region ¹ | Gross farm production | | | Crop and pasture production | | | All livestock production | | |
|---------------------|-----------------------|-------------------|--------------------|-----------------------------|-------------------|--------------------|--------------------------|-------------------|--------------------|
| | 1943 | 1944 ² | Postwar bench mark | 1943 | 1944 ² | Postwar bench mark | 1943 | 1944 ² | Postwar bench mark |
| Northeast | 105 | 108 | 114 | 100 | 104 | 111 | 113 | 114 | 117 |
| North Central..... | 131 | 133 | 142 | 129 | 135 | 141 | 135 | 130 | 144 |
| South | 108 | 117 | 136 | 104 | 114 | 135 | 131 | 130 | 140 |
| Mountain | 132 | 130 | 131 | 135 | 131 | 132 | 125 | 126 | 125 |
| Pacific | 115 | 121 | 119 | 114 | 121 | 119 | 118 | 124 | 119 |
| United States..... | 119 | 124 | 134 | 116 | 123 | 133 | 129 | 127 | 137 |

¹ The Northeast region includes the New England and Middle Atlantic census geographic divisions; the North Central region includes the East North Central and West North Central divisions; the South includes the South Atlan-

tic, East South Central and West South Central divisions; and the Mountain and Pacific regions are identical with the census divisions of the same name.

² Preliminary.

TABLE 6.—*Estimated change in farm production by groups of farm products, and by major regions, 1943 to postwar bench mark*¹

| Item | Northeast | North Central | South | Mountain | Pacific | United States |
|---|----------------|----------------|----------------|--------------------|--------------------|----------------|
| | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> |
| Gross farm production | 8.0 | 8.7 | 25.1 | -1.0 | 3.8 | 12.6 |
| Crops and pasture ² | 10.8 | 9.4 | 31.0 | -1.6 | 4.8 | 15.5 |
| Feed grains and hay | 10.2 | 11.0 | 42.3 | 12.9 | 13.4 | 18.1 |
| Food grains | 40.1 | 11.1 | 43.4 | ⁴ -25.1 | ⁴ -19.2 | 9.5 |
| All truck crops and vegetables, fruits and nuts | 10.2 | 11.8 | 16.2 | -7.0 | 1.0 | 8.2 |
| Sugar crops | 0 | 123.0 | 8.0 | 85.2 | 144.3 | 55.5 |
| Cotton | ... | 70.0 | 30.5 | -10.4 | 38.3 | 30.9 |
| Tobacco | -2.9 | 37.0 | 50.3 | ... | ... | 47.1 |
| Oil crops | -21.4 | -28.9 | 9.3 | -82.4 | 3.6 | -19.2 |
| All livestock ³ | 4.2 | 7.2 | 6.8 | .8 | .5 | 6.0 |
| Dairy products | 16.6 | 29.5 | 27.7 | 16.4 | 11.6 | 24.5 |
| Poultry products | -8.9 | 4.5 | 12.2 | -3.1 | -8.1 | 3.3 |
| Meat animals | 12.4 | 1.4 | .9 | 2.6 | .2 | 1.8 |
| Horses and mules | -21.0 | -25.6 | -18.5 | -17.6 | -21.5 | -21.6 |

¹ See footnote 1, table 5.

² Includes some miscellaneous crops not included in the listed groups of crops and pasture used by livestock.

³ Includes wool and mohair.

⁴ 1943 wheat yields in the Mountain region were 49 percent and those in the Pacific region 18 percent above 1937-41 planted-acre yields. This is mainly responsible for the large decreases indicated from 1943.

though tobacco and food grains show a greater percentage increase. Farm-produced power is the only item for which a decrease is suggested in the benchmark production level for this region.

About one-half of the bench-mark increase in the North Central region is in feed grains and hay and nearly 30 percent in dairy products. As feed grains and hay normally represent such a large proportion of gross farm production in this region, the 11-percent increase in this group of products forms a large part of the possibilities for total increase. Dairy products, on the other hand, could increase almost 30 percent as compared with 1943 production. Sugar crops, cotton, and tobacco offer possibilities of large percentage increases over 1943, but they are minor products in this region, and would not greatly affect total production. Major downward adjustments would be made in oil crops and in horses and mules.

In the other major regions, the greatest suggested production increases are in dairy products and feed grains and hay.

FARMS AND FARM WORKERS

Number and kinds of farms.¹—A decline in the total number of farms of about 7 percent from 1940 is suggested for the postwar bench mark. By regions, this decrease ranges from 1 to 8 percent (table 7). For all regions, the net decrease results from a larger reduction in the number of self-sufficing farms, a rather small decrease in the number of commercial farms, and in all regions an increase in the number of part-time farms.

The smaller-sized commercial farms would tend to become larger in acreage in order to make more efficient use of machinery. This adjustment would

¹ Share-cropper units are not counted as separate farms. They are considered as parts of other farms.

strengthen the competitive position of the family farm. The land that would be added to commercial farms would come primarily from those self-sufficing farms that would go out of production under conditions of full employment.

The suggestions call for more than a million self-sufficing farms to remain in production even under prosperity conditions. But these estimates were made for a time period centering on 1950, and it was realized that drastic changes in number of farms can be made only over a longer period of years. The remaining self-sufficing farms would be those on which it is difficult to increase production because additional land is not available to permit enlargement of the farms or because the nature of the soils and topography preclude the enlargement of farms. For many operators of these farms the modest incomes to be obtained represent their best economic opportunity for the early postwar period even under conditions of full employment. Some of the persons operating self-sufficing farms would come from the groups that receive pensions or social security benefits. Both of these groups are likely to be larger in the years following the war.

Part-time farms are likely to increase in number because of the desire of many urban workers to live on the land. The average acreage per farm and the intensity of operation on part-time farms would tend to decline as opportunities for industrial employment improve.

Comparable figures are not available for the number of farms in operation during the war, but it is estimated that there were about 5,100,000 farms (exclusive of share-cropper units) in 1943. This is approximately the same as the suggested total number, excluding share-cropper units, in 1950. However, the 1950 total would include a smaller number of subsistence farms and a considerably larger number of part-time farms.

TABLE 7.—Number of farms,¹ by classes² and major regions, 1940 and postwar bench mark

| Region ³ | 1940 ⁴ | | | | Postwar bench mark | | | | Postwar bench mark as percentage of 1940 | | | |
|---------------------|-------------------|--------------------|---------------|-----------|--------------------|--------------------|---------------|-----------|--|--------------------|---------------|---------|
| | Com- mercial | Self- sufficing | Part- time | Total | Com- mercial | Self- sufficing | Part- time | Total | Com- mercial | Self- sufficing | Part- time | Total |
| | Thousands | Thousands | Thousands | Thousands | Thousands | Thousands | Thousands | Thousands | Percent | Percent | Percent | Percent |
| Northeast | 295 | 131 | 57 | 483 | 268 | 125 | 66 | 477 | 97 | 95 | 116 | 99 |
| North Central .. | 1,421 | 457 | 214 | 2,092 | 1,357 | 327 | 267 | 1,951 | 95 | 72 | 125 | 93 |
| South | 1,413 | 774 | 280 | 2,467 | 1,359 | 562 | 347 | 2,268 | 96 | 73 | 124 | 92 |
| Mountain | 146 | 59 | 28 | 233 | 137 | 51 | 34 | 222 | 93 | 86 | 121 | 95 |
| Pacific | 171 | 48 | 57 | 276 | 145 | 39 | 77 | 261 | 85 | 81 | 135 | 95 |
| United States ... | 3,446 | 1,469 | 636 | 5,551 | 3,284 | 1,104 | 791 | 5,179 | 95 | 75 | 124 | 93 |

¹ Share-cropper units are considered as parts of other farms, and they are not included as separate farms in the numbers of the three kinds of farms listed.

² The classes of farms shown below are defined as follows: Commercial farms, those which make a substantial contribution to production for sale; self-sufficing farms, those which make little contribution to production for sale and whose operators do little or no work off the farm; part-time farms, the operators of which work a considerable

part of the year in nonfarm occupations or for other farmers.

³ See footnote 1, table 5.

⁴ The total numbers of farms for the United States and each region are from the Census. The Census enumerated 546,000 units operated by share croppers which are not counted in this column. Numbers of farms in the different classes were estimated on the basis of Census and other data.

Farm workers.—A 13-percent increase in gross farm production with 3 percent fewer workers, measured in terms of change from the war year 1943, is outlined in the State committee reports. The increase in production per worker is shown to be much larger in comparison with prewar years.

Farm workers would not have to work so long or so hard to achieve this increase in production as they had to do in wartime. Mechanization of farm operations is likely to take long strides in the years of transition to peacetime conditions. An increase in gross farm production brought about primarily through an increase in crop production per acre would be a labor-efficient increase. Moreover, the postwar farm working force would have a larger proportion of able-bodied and younger men than was true in time of war. This increase in average quality of the farm working force, from 1943 to postwar, could more than make up for the smaller average number of workers employed.

Fewer farm workers than in 1943 would be needed for bench-mark production in each of the broad regions of the United States (table 8). More significant than the decrease in total number of workers needed, however, is the contemplated change in composition of the working force. Compared with the working force in 1940, fewer family workers (farm operators, including share croppers, and unpaid members of their families), fewer seasonal hired workers, and a larger number of regular hired workers would be needed.

This suggested shift in composition of the farm working force is related to several factors. A smaller number of commercial farms of larger average size would mean fewer farm families and fewer operators and unpaid family workers. A sharp reduction in the number of self-sufficing farms would result almost wholly in a reduction in family workers, for these farms are not important users of hired labor. Com-

mercial farms of larger size would call for greater dependence on hired workers, particularly in a postwar situation where high net farm incomes would

TABLE 8.—Average annual farm employment, by major regions, prewar, war, and postwar

[Index numbers 1940 = 100]

| Region ¹ | Total employ- ment | Family work- ers ² | Hired workers | | |
|---------------------|--------------------------|-------------------------------------|---------------|---------------------------|----------------------------|
| | | | Total | Regu- lar ³ | Sea- sonal ⁴ |
| Northeast: | | | | | |
| 1940 | 100 | 100 | 100 | 100 | 100 |
| 1943 | 97 | 100 | 93 | ..... | ..... |
| Postwar bench mark | 97 | 96 | 97 | 97 | 98 |
| North Central: | | | | | |
| 1940 | 100 | 100 | 100 | 100 | 100 |
| 1943 | 97 | 99 | 87 | ..... | ..... |
| Postwar bench mark | 96 | 93 | 110 | 119 | 83 |
| South: | | | | | |
| 1940 | 100 | 100 | 100 | 100 | 100 |
| 1943 | 96 | 96 | 94 | ..... | ..... |
| Postwar bench mark | 92 | 90 | 102 | 103 | 96 |
| Mountain: | | | | | |
| 1940 | 100 | 100 | 100 | 100 | 100 |
| 1943 | 104 | 105 | 102 | ..... | ..... |
| Postwar bench mark | 94 | 93 | 96 | 100 | 88 |
| Pacific: | | | | | |
| 1940 | 100 | 100 | 100 | 100 | 100 |
| 1943 | 104 | 102 | 107 | ..... | ..... |
| Postwar bench mark | 98 | 89 | 109 | 103 | 113 |
| United States: | | | | | |
| 1940 | 100 | 100 | 100 | 100 | 100 |
| 1943 | 97 | 98 | 94 | ..... | ..... |
| Postwar bench mark | 94 | 91 | 103 | 106 | 96 |

¹ See footnote 1, table 5.

² Farm operators including share croppers, and members of their families working without wages.

³ Hired workers regularly engaged in farm work mostly on one farm for at least 8 months during the year.

⁴ Other hired workers not qualifying as regular workers.

provide the cash and the incentive to hire more of the work done.

A work force of more regular hired workers but fewer workers hired seasonally is associated with the composition of the suggested postwar production. The great emphasis on feed grains and hay and on dairy products would result in a need for more regular hired workers. Further mechanization of harvest operations in the feed-grains and hay-crop group would eliminate a corresponding increase in need for seasonal hired workers. In the Pacific region, where wartime seasonal labor problems were particularly troublesome, a substantial increase in the number of seasonal hired workers is suggested for the postwar bench mark.

Increased farm production with a smaller number of workers naturally results in an increase in production per farm worker (table 9). Gross production per farm worker would increase by 30 percent in the South, from 1943 to the postwar bench mark, and by approximately 10 percent in each of the other broad regions. For the United States as a whole, gross production per worker would be 16 percent above that in 1943 and 9 percent above that in 1944.

Judged by prewar standards, postwar farm-worker productivity would increase from one-sixth to more than one-half in the various regions. Worker productivity increased more than one-third during wartime in the North Central and Mountain regions, but bench-mark possibilities show per worker production half again as large as the prewar

average. For the South to reach a similar postwar level of worker productivity, relative to its prewar base, a large increase from the wartime level would be needed. Significant increases from wartime levels of production per worker would also be needed in the Northeast and Pacific regions if they are to attain the postwar possibilities estimated for those regions.

TABLE 9.—Gross production per farm worker, by major regions, prewar, war, and postwar bench mark

[Index numbers 1935-39 = 100]

| Region ¹ | 1943 | 1944 ² | Postwar bench mark |
|---------------------|------|-------------------|--------------------|
| Northeast | 106 | 112 | 116 |
| North Central | 138 | 141 | 151 |
| South | 119 | 131 | 155 |
| Mountain | 133 | 135 | 146 |
| Pacific | 110 | 114 | 120 |
| United States | 127 | 135 | 147 |

¹ See footnote 1, table 5.

² Preliminary.

LAND USES AND PRODUCTION PRACTICES

SUGGESTED CHANGES IN LAND USE

Total cropland in the United States, including the fallow and idle acreage, did not change materially

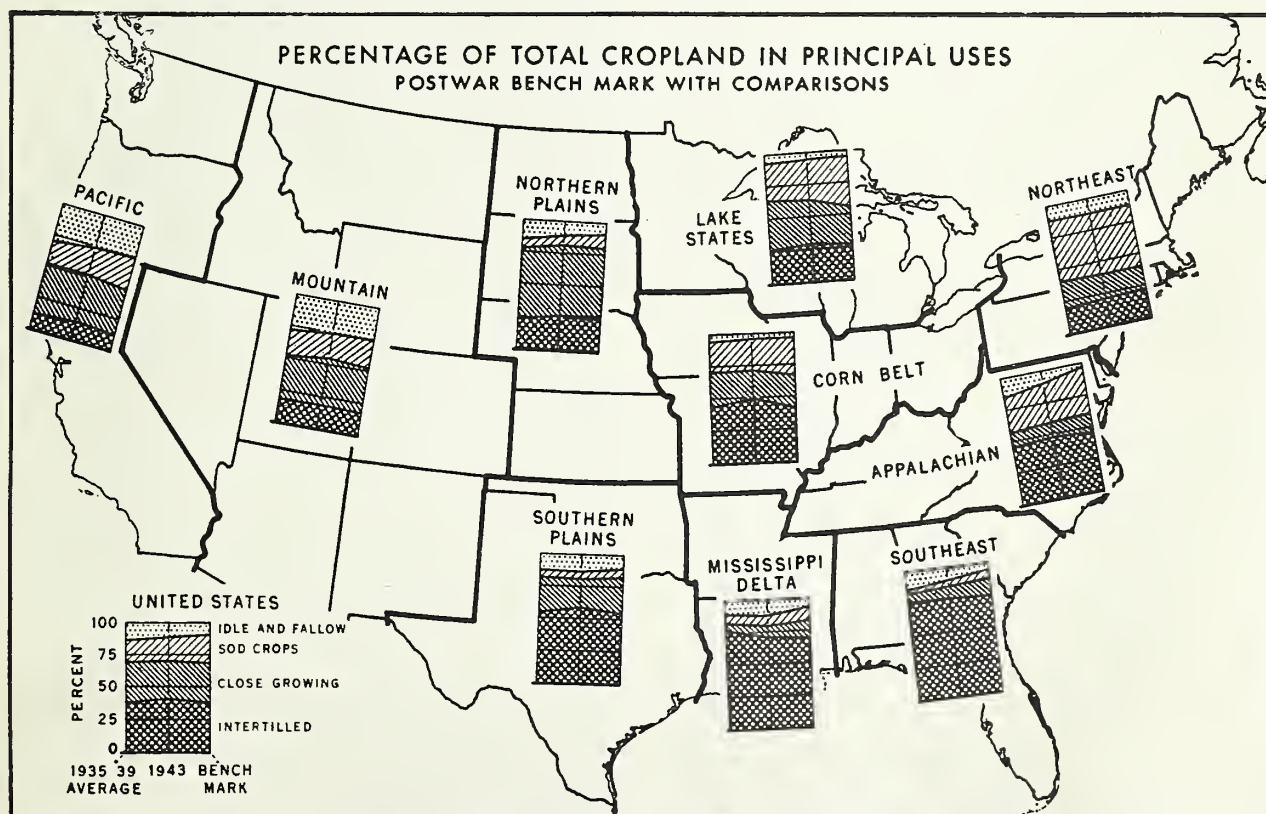


FIGURE 2.—Principal uses of cropland.

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from the prewar years 1935-39 to the war year 1943. And postwar bench-mark estimates suggest a reduction of only 2 percent from 1943 levels. The significant changes in land use are to be found rather in the relative emphasis given to intertilled, close-growing, and sod crops in different groups of States;² and in the amount of cropland fallowed or permitted to remain idle through the years (table 10, fig. 2).

TABLE 10.—*Changes in the principal uses of cropland in the United States—prewar, war and postwar*¹

| Use of cropland | Average 1935-39 2 | 1943 2 | Postwar bench mark | Percentage postwar bench mark is of— | |
|--|----------------------|------------------|--------------------------|--|---------|
| | | | | 1935-39 | 1943 |
| | Million acres | Million acres | Million acres | Percent | Percent |
| Intertilled crops ³ | 163.0 | 172.1 | 158.6 | 97 | 92 |
| Close-growing crops ³ ... | 133.0 | 125.3 | 128.2 | 96 | 102 |
| Sod crops ^{3 4} | 73.5 | 78.4 | 92.5 | 126 | 118 |
| Total cropland used for crops | 369.5 | 375.8 | 379.3 | 103 | 101 |
| Summer fallow and idle cropland | 57.0 | 48.5 | 38.5 | 68 | 79 |
| Total cropland ⁵ .. | 426.5 | 424.3 | 417.8 | 98 | 98 |

¹ See table 1 in the BAE summary for individual crops included in these categories, Peacetime Adjustments in Farming—Possibilities under Prosperity Conditions (Statistical Supplement), (Processed).

² Planted acres insofar as available, all others harvested acres.

³ Adjustments made for multiple use of land by considering first use in the crop year as the primary use.

⁴ Including acres in tame hay, hay, and cover-crop seeds, and in rotation pasture.

⁵ Includes rotation pasture. It does not include wild hay, orchards, vineyards, and farm gardens, which were included in table 3 for the purpose of measuring crop output per acre.

Wartime needs had shifted 9 million additional acres to intertilled crops by 1943, making a total of 172 million acres—41 percent of the Nation's cropland. In the interest of more permanent systems of

² In the foregoing sections dealing with broad changes in over-all production, specific production patterns, farms and farm workers, census geographic divisions were combined into 5 broad regions (see footnote 1, table 5). This geographic breakdown made possible more use of available supplementary data and provided sufficient area details for the purposes of the analysis. In discussion and analysis of the more technical production problems which follow, greater geographic detail is desirable. Therefore, 2 of the 5 broad regions have been broken down into more homogeneous production areas. The 10 State groups used are as follows: Northeastern States (Me., N. H., Vt., Mass., R. I., Conn., N. Y., N. J., Pa.); Lake States (Minn., Wis., Mich.); Corn Belt States (Ohio, Ind., Ill., Iowa, Mo.); Appalachian States (Del., Md., Va., W. Va., N. C., Ky., Tenn.); Southeastern States (S. C., Ga., Fla., Ala.); Mississippi Delta States (Miss., Ark., La.); Southern Plain States (Okla., Tex.); Northern Plains States (N. Dak., S. Dak., Nebr., Kans.); Mountain States (Mont., Wyo., Idaho, Utah, Nev., Colo., Ariz., N. Mex.); Pacific States (Wash., Ore., Calif.).

farming the bench-mark suggestions call for reduction of the intertilled total by 13.5 million acres to 38 percent of the cropland base. This is about 4.5 million acres less than was intertilled during 1935-39 and represents a real shift in the direction of rotations that would go far toward restoring fertility lost during wartime and adding greater stability to postwar systems of farming.

Most pronounced changes in intertilled acres since 1935-39 have occurred in the Corn Belt and Mississippi Delta States. Nearly one-half (49 percent) of the cropland in the Corn Belt States was intertilled in 1943; the acreage of corn and soybeans having been greatly expanded, primarily at the expense of close-growing crops. Committees in these States suggested moderate postwar increases in close-growing crops, but the largest shift would come in expanding the acreage for forage production—from 24 percent of the cropland in 1943 to 30 percent in the postwar period.

In the Mississippi Delta States intertilled crops, largely cotton and corn, occupied 76 percent of all cropland just before the war. The relatively greater need for crops other than cotton have induced wartime shifts that seem consistent with the long-time interest of southern agriculture. The suggested postwar intertilled acreage would be 69 percent of the cropland base. This is still very high but, until profitable long-time alternatives to cotton can be found, this high percentage is perhaps more justifiable in the productive Delta areas than in areas that have land that is less capable of withstanding intensive cropping. The decrease in intertilled acreage in the Mississippi Delta States would be offset by more than doubling the prewar acreage in close-growing crops, by increasing sod crops to one and a half times their prewar acreage, and by returning about half the prewar idle cropland to active use (fig. 2). Suggested changes for postwar years in the Southeastern States are similar to those for the Mississippi Delta States, except that the postwar proportions of cropland intertilled remains almost the same as in war and prewar years.

Thirty-one percent (about 128 million acres) of the Nation's cropland is suggested for close-growing crops after the war. This is about 3 million acres more than in 1943, but about 5 million less than in prewar years. Greatest increases are suggested in the Southeastern and Mississippi Delta States already discussed. In the Lake States the postwar bench-mark acreage of close-growing crops is but 77 percent of the 1935-39 acreage. Most of the 3.8 million acres released in this way would contribute toward the increase of 4.7 million acres over the period 1935-39, in hay and pasture crops in the Lake States.

Most significant of the suggested postwar changes in land use is the emphasis given to hay and rotation pasture. Nineteen million acres would be added to the 73.5 million so used during 1935-39. The resulting 92.5 million acres would occupy 22 percent of the Nation's cropland (table 10). Changes in this direction contribute effectively toward conservation of

soil resources and, through livestock production, to improvement of the national diet. More than three-fourths of the 19-million acre increase would occur in four groups of States as follows: Corn Belt States 4.9 million, Lake States 4.7 million, Northern Plains States, 3.4 million, and Appalachian States 2.3 million acres. In the Lake and Appalachian States most of the increase is in hay acreage, while in the Corn Belt and Northern Plains States, it is more evenly divided between hay acreage and rotation pasture.

State Committees suggested reduction of fallow and idle cropland to 38.5 million acres in the postwar years—a decrease of 18.5 million from the 1935–39 acreage. Nearly half of this decrease was suggested for the Southern States, primarily in the Appalachian and Southeastern groups. Here much of the idle cropland is about as productive as some land that is being tilled and the suggested shift represents an effort to utilize production resources more fully. Accomplishment of postwar suggestions in the Northern Plains States would result in material decreases in idle cropland and at the same time would extend the acreage that is summer fallowed. The combined effect of these changes would be about a 5½-million-acre decrease in idle cropland, but more than half this shift had already taken place by 1943. Wartime needs for wheat forced some abandonment of the fallow practice in areas where continuous cropping would give greater production in the short run, and in many areas was made possible by above-normal precipitation.

The use of tillable land for individual crops is discussed in later sections of this report.

SUGGESTED CHANGES IN PRODUCTION PRACTICES

Practices considered by the State Committees included only those which would materially affect production per acre and per animal within a period of about 5 years and would be profitable to farmers under prosperity conditions. Thus certain desirable practices that require considerable capital outlay, on which returns would accrue more slowly, were not included. Similarly, practices were omitted that have already been so largely adopted that there is little opportunity for their further expansion. For the practices considered, the estimates are of the approximate extent of use in 1943 and the extent to which their use could be increased profitably within the period indicated.

Crop and pasture practices.—Estimates of profitable adoption of practices were developed for individual crops and for permanent pasture in terms of the percentage of cropland and permanent-pasture acreage to which they apply. These are discussed in the commodity sections of this report. For fertilizer and lime, estimates were made of the quantities that could be used profitably, as well as the acreage involved.

Individual practices suggested by the State Committees may be thought of as falling into three principal groups: (1) Fertility practices, (2) conserva-

tion practices, and (3) cultural practices. Fertility practices are those that add fertility to the soil, and include fertilizers, lime, and cover crops. Conservation practices are those that tend to check losses in soil fertility or to reduce soil erosion and conserve moisture, such as improved rotations, mechanical erosion control, contouring, and better pasture management. Cultural practices are those that have no direct influence on the level of soil fertility, but which do increase the yield obtained. They include such items as improved varieties, seeding methods, insect, disease, and weed control. There is no attempt to evaluate separately the three groups of practices with reference to their effect on crop yields—rather their combined effects are studied. These are discussed in the commodity sections of this report.

For purposes of appraising the significance of suggested increases in adoption of crop and pasture practices it is appropriate to consider fertility and conservation practices as one general group, in comparison with cultural practices. In certain areas and under certain conditions there is considerable overlapping between the fertility and conservation practices used in maintaining a desirable level of soil fertility and sustained yields.

State Committees' suggestions for changes in emphasis from 1943 to postwar for each of these two broad groups of practices, as they pertain to cropland, are reflected by regions in table 11. Similar estimates for pasture-land cultural practices were not given in sufficient quantity to permit comparable summarization. As there is frequently duplication of practices on the same acreage the percentage relationship between the acres of practices and all land in crops may exceed 100. The percentage data shown in table 11 in no instance represent the proportion of the cropland to which the practices now apply or to which it is suggested that they apply in the postwar period. They merely represent the total acreage of these two groups of *practices* (not land), divided by the total acreage of land used for crops.

Suggested extent of adoption of practices.—State Committees' suggestions on practices that would be profitable under conditions of agricultural prosperity were based upon a general cross section of physical and economic resources and managerial ability. The estimates therefore are not based on what would be profitable for the most capable farmers or for those who are most advantageously situated but on the more typical farm situations prevailing in the different adjustment areas and States. Developed in this manner, the suggested extent of adoption would not represent what might be desirable if considered only on a physical basis. The extent of practices suggested would, if adopted, represent substantial progress in restoration and maintenance of soil fertility, improving it in many instances, and increasing the efficiency of production. It would, however, leave much to be done by comparison with that needed to attain the most economic levels of soil fertility and efficiency of pro-

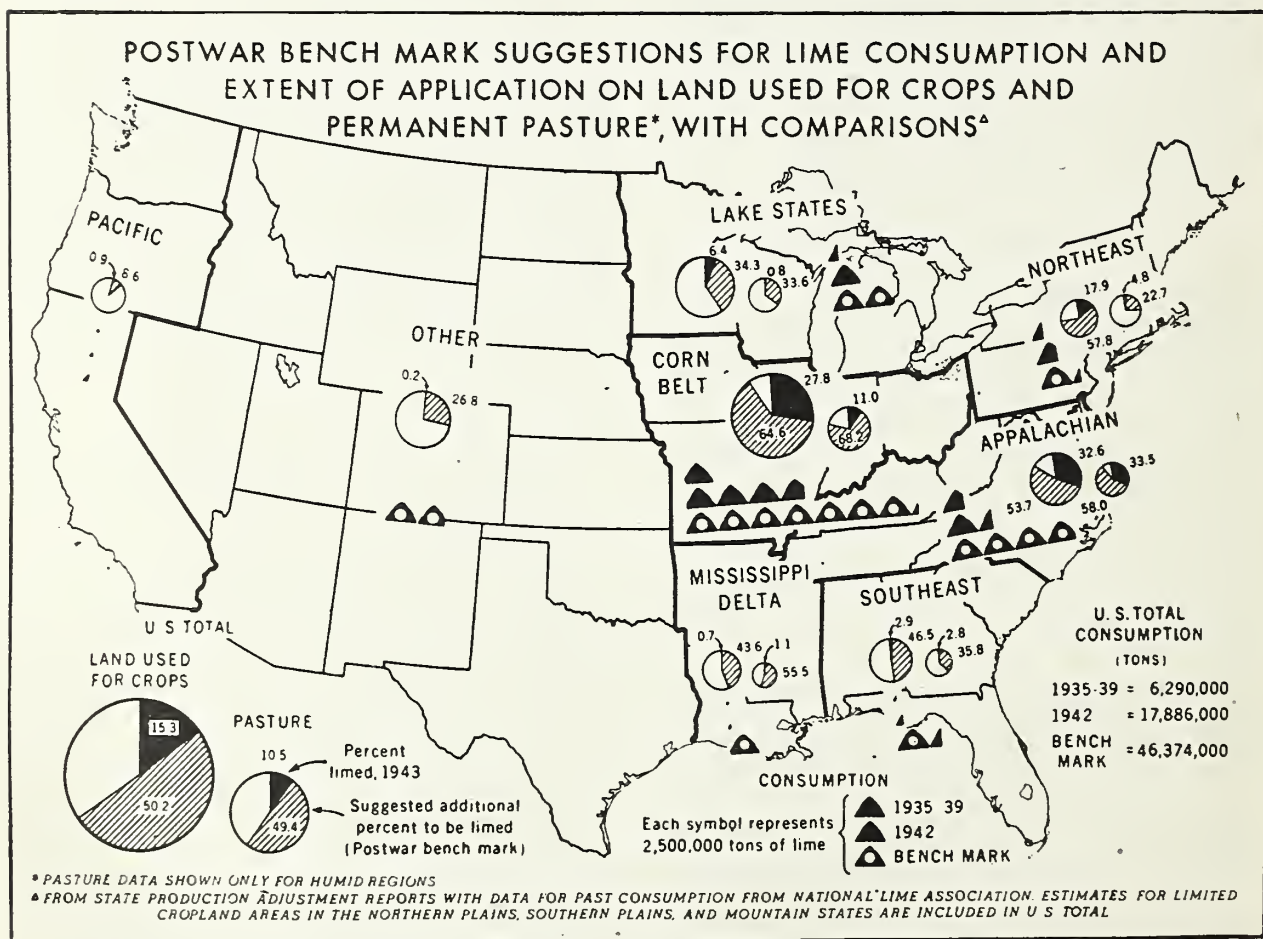
duction that would be associated with more ideal combinations of physical, economic and human resources.

Because of acreages duplicated when practices are grouped, estimates of present and bench mark extent of adoption in terms of percentage of all cropland and pasture land can be shown only for selected individual practices. Lime and fertilizer are the only ones for which this is attempted on a regional and national scale. Lime was applied to about 15 percent of the land used for crops (not including idle and fallow land) and to 10 percent of the permanent open pasture in the humid regions in 1943. For the postwar bench mark it was suggested that it would pay to extend it to about two-thirds of the land used for crops and to 60 percent of the pasture acreage. For the United States as a whole, State Committees estimated that about 20 percent of all land used for crops and 6 percent of the permanent open pasture in the humid regions received fertilizer in 1943. Suggestions for the bench-mark period would extend the use of fertilizer to about 40 percent of the acreage to be used for crops and to 36 percent of the permanent pasture. Thus 60 percent of the total acreage for crops in the United States and nearly

TABLE 11.—*Postwar bench-mark suggestions for emphasis of fertility conservation and for cultural practices on land used for crops, compared with 1943*

| Region | Percentage relationship between acres of practices and all land in crops | | | |
|----------------------|--|--------------------|--|--------------------|
| | Fertility and conservation practices | | Cultural practices having no direct influence on fertility | |
| | 1943 | Postwar bench mark | 1943 | Postwar bench mark |
| | Percent | Percent | Percent | Percent |
| Northeast | 61 | 127 | (¹) | (¹) |
| Lake States | 90 | 168 | 23 | 32 |
| Corn Belt | 51 | 186 | 51 | 86 |
| Appalachian | 88 | 259 | 38 | 86 |
| Southeast | 75 | 154 | 130 | 209 |
| Mississippi Delta .. | 56 | 148 | 51 | 112 |
| Southern Plains .. | 29 | 53 | 43 | 75 |
| Northern Plains .. | 30 | 81 | 80 | 120 |
| Mountain | 66 | 146 | 25 | 65 |
| Pacific | 160 | 238 | 0.4 | 2 |
| Total | 60 | 152 | 47 | 82 |

¹ Quantitative estimates not available in State reports.



BAE 45334

FIGURE 3.—Suggested lime consumption and extent of application on land used for crops and permanent pasture.

two-thirds of the permanent open pasture in the humid regions would receive no fertilizer even if the bench-mark suggestions were translated into actual practice. Likewise, one-third of the total crop acreage and two-fifths of the permanent open pasture in humid regions would receive no lime. Regional variations in the present and suggested postwar extent of use of fertilizer and lime are presented in figures 3 and 5.

Lime.—The use of agricultural lime increased nearly threefold from the 1935–39 period to 1942. The increase has been rapid since 1936, when lime was included as a conservation material for AAA distribution. Lime consumption would be increased to more than seven times its average use in 1935–39 in order to bring about the desirable and economic adjustments in land use visualized in the benchmark estimates. Annual consumption would be more than two and one-half times that in 1942, after all the land needing lime had received the initial application. Before this time a larger initial tonnage would be needed since in some areas the initial application is made at a higher rate per acre. According to these estimates only a little more than one-fifth of the 218 million acres of crop and pasture land needing lime were adequately limed as of 1943. More than one-fourth of the acreage remaining to be limed is permanent pasture.

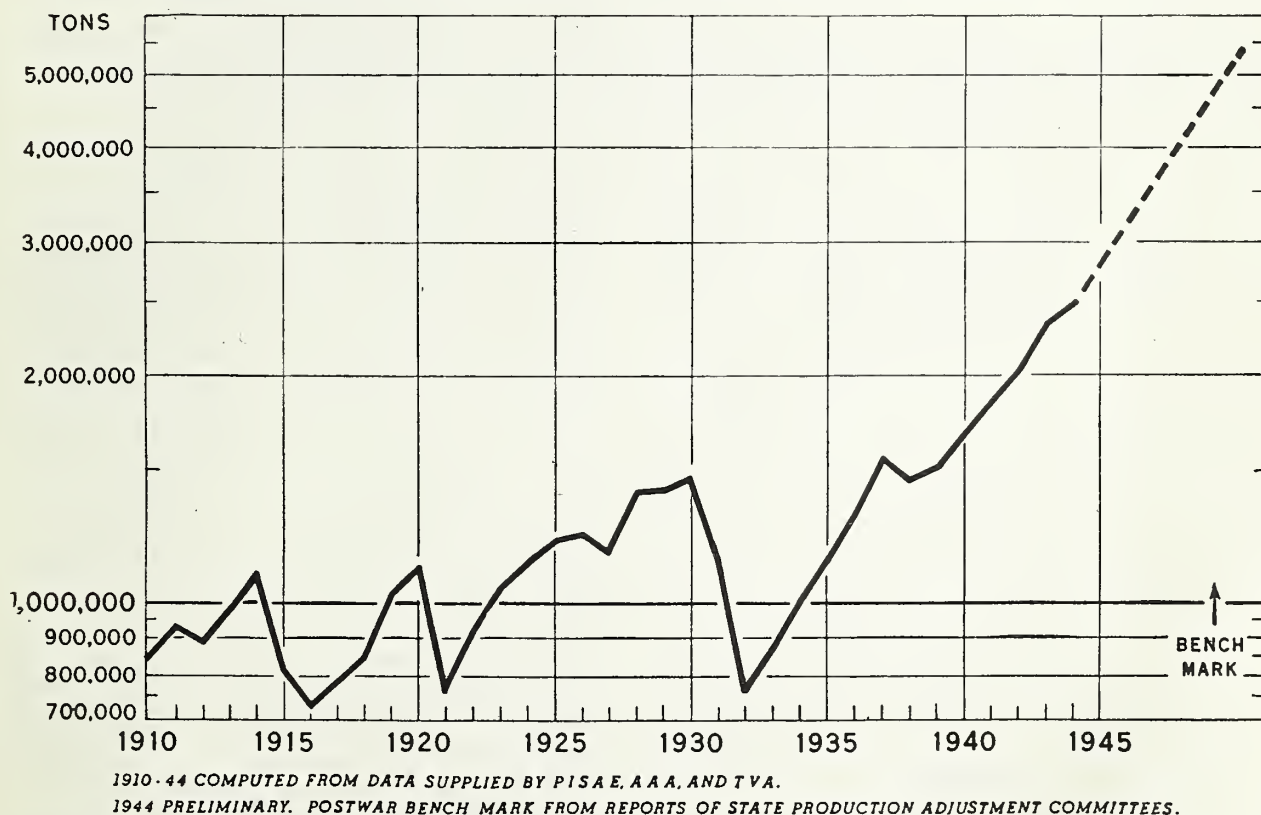
A more complete picture of the importance of

lime and of fertilizer in the postwar economy is presented in figures 3 and 5. These show, by regions, the recommended percentage of cropland and pasture acreage to receive lime and fertilizer, together with annual quantities for the postwar benchmark period, with comparisons.

Fertilizer.—The postwar benchmark suggestions with respect to use of fertilizer are in no sense to be regarded as “requirements,” “forecasts,” or “maximum possible” uses. They represent the combined judgments of State Committees concerning profitable use under the price conditions summarized in table 2. Applications would be made at this level for the purpose of maintaining and improving soil resources, establishing stable farming systems, and securing economic production under those conditions.

The total quantity of nitrogen, phosphoric acid, and potash that State Committees estimated could be used profitably by farmers under the prosperity conditions assumed is 387 percent of the 1935–39 average use and 216 percent of the estimated 1944 consumption (table 12). The suggested increases would result mostly from extended use on crops and in areas that have received little or no application. Hay and pasture and the small-grain crops that precede them in the rotation would receive the greatest increases (fig. 5 and table 13).

Figure 4 shows the historical trend of fertilizer



BAE 45303

FIGURE 4.—Fertilizer consumption, in terms of nitrogen, phosphoric acid, and potash, continental United States, 1910–44 and suggested postwar benchmark.

consumption in the United States in relation to the bench-mark suggestions. Fertilizer use increased about 40 percent in the 1920's, following World War I. In the World War II period farmers learned to use fertilizer in areas and on crops that formerly received no fertilizer. They would have used more had it been obtainable. This experience will provide considerable stimulus for increased use under favorable postwar conditions, but educational and other programs undoubtedly would be needed to achieve the bench-mark levels.

TABLE 12.—*Postwar bench-mark suggestions for economic use of commercial plant nutrients under favorable economic conditions, with comparisons*¹

| Item | 1935-39 use | 1944 use ² | Postwar bench mark | Percentage postwar bench mark is of— | |
|--|-------------|-----------------------|--------------------|--------------------------------------|---------|
| | | | | 1935-39 | 1944 |
| | 1,000 tons | 1,000 tons | 1,000 tons | Percent | Percent |
| Nitrogen (N) | 335 | 594 | 1,079 | 322 | 182 |
| Phosphoric acid (P ₂ O ₅) | 702 | 1,279 | 2,763 | 394 | 216 |
| Potash (K ₂ O) | 352 | 620 | 1,534 | 436 | 247 |
| Total plant nutrients | 1,389 | 2,493 | 5,376 | 387 | 216 |

¹ A detailed breakdown of average consumption for the 1935-39 period, for 1944 and estimated bench-mark quantities, is given by regions in the statistical supplement to this report, page 27.

² Preliminary.

TABLE 13.—*Postwar bench-mark suggestions on economic use of commercial plant nutrients, by classes of crops under favorable economic conditions, with comparisons*

| Classes of crops | N, P ₂ O ₅ , and K ₂ O | | | Percentage of total consumption | |
|---|---|--------------------|-------------------------------------|---------------------------------|------------|
| | 1942-43 ¹ | Postwar bench mark | Percentage bench mark is of 1942-43 | 1942-43 | Bench mark |
| | 1,000 tons | 1,000 tons | Percent | Percent | Percent |
| Cash crops (except wheat and legume crops) ² | 993 | 1,720 | 173 | 45 | 32 |
| Corn and grain sorghums ³ | 442 | 1,070 | 243 | 20 | 20 |
| All other grain crops and large seeded legumes ⁴ | 338 | 1,156 | 342 | 16 | 22 |
| Hay and pasture ⁵ | 420 | 1,430 | 340 | 19 | 26 |
| Total | 2,193 | 5,376 | 245 | 100 | 100 |

¹ For the crops harvested in 1943. Estimates supplied by PISAE.

² Cotton, tobacco, all vegetables, fruits, nuts, rice, flax, velvet beans, sugar, and sirup crops.

³ All field corn and sorghum for grain.

⁴ All small grain (including buckwheat), soybeans, cowpeas, peanuts, dry peas and dry beans.

⁵ Permanent and rotation pasture, winter legumes, cover crops, and all sod-forming hay crops.

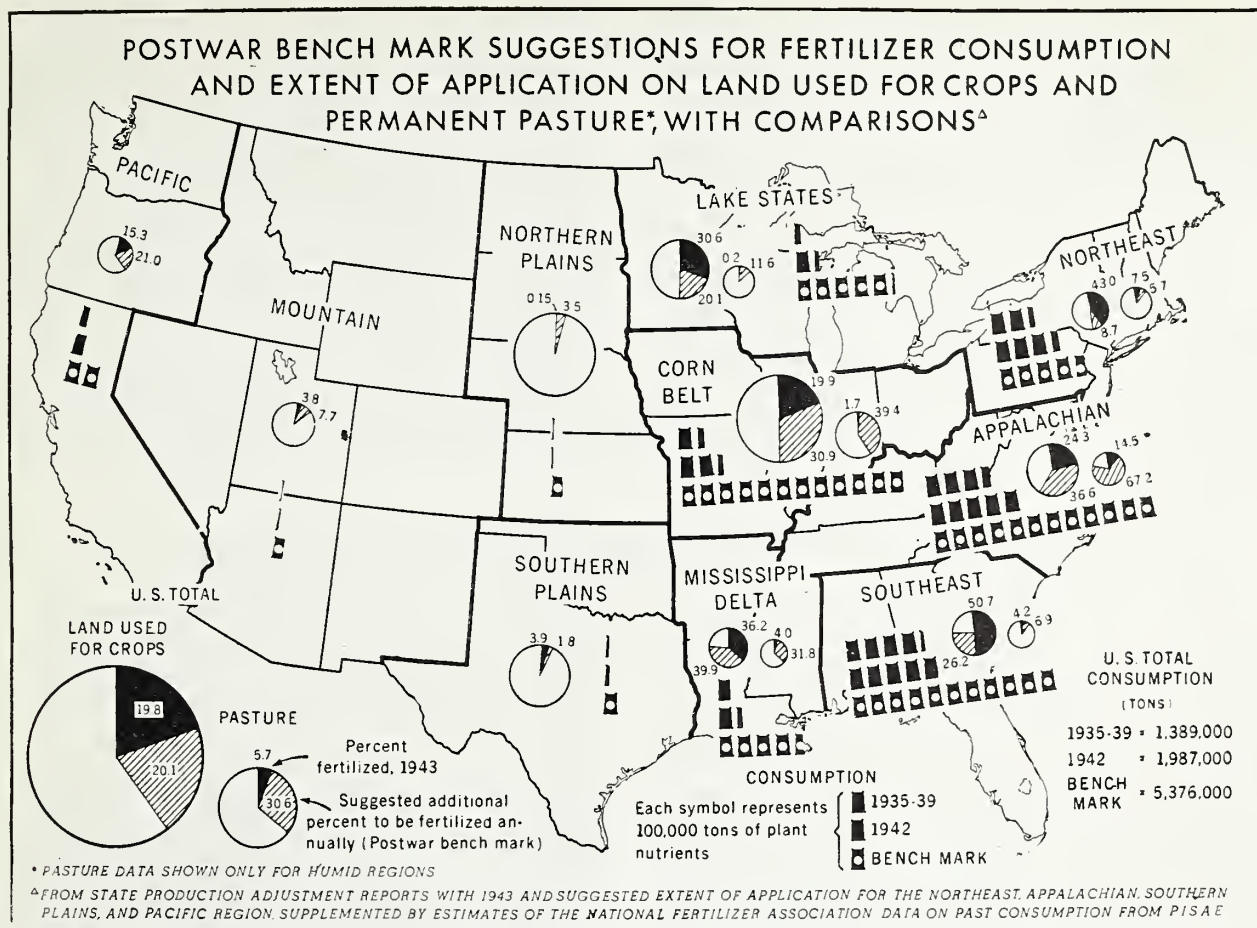
Figure 5 shows the suggested bench-mark quantities by regions in relation to past consumption. The changing importance of the different regions as consumers of fertilizer is interesting. The Southeast ranked first during the 1935-39 period but had fallen to second place by 1942 and would become third in importance if the bench-mark cropping patterns and practices materialized.

The Appalachian States now rank first in consumption of commercial plant nutrients and would continue to do so in the bench-mark estimates. Regional shifts of considerable importance would come about if farmers in all regions used more nearly the quantities of fertilizer that would pay under prosperity conditions. The Corn Belt and Lake States would become important users of fertilizer. These groups of States ranked fourth and sixth respectively in fertilizer consumption both during the 1935-39 period and in 1942. If bench-mark suggestions materialize, the Corn Belt would rise to the second place now held by the Southeast. The Lake States would follow the Southeast and would occupy fourth place in fertilizer consumption, with the Northeast dropping from third to fifth position.

Important shifts also would take place in the use of fertilizer by crops and classes of crops. These shifts are largely a reflection of the regional changes just discussed. The most significant change suggested is the marked increase in use of fertilizer on hay and pasture. This increase would be both absolute and relative, as shown in table 13. The recommended acreage increase in sod crops in all regions and in sod crops plus permanent open pasture in the humid regions amounts to about 12 percent, but use of fertilizer on hay and pasture would be more than three times as great as in 1943. More than one-fourth of all commercially produced plant nutrients would be used on hay and pasture, in contrast to about 19 percent in 1943.

A large proportion of the fertilizer used on small-grain crops benefits the hay and rotation pasture that generally follows these crops in areas where fertilizer is used. This is as true for wheat as for the small-grain feed crops, and an increased use of fertilizer on these crops must be counted as a further supplement on hay and rotation pasture. There is therefore good reason for including wheat along with other small grains, rather than as a cash crop, when shifts in fertilizer use by groups of crops are noted. The cash crops other than wheat and legumes, on which the largest quantities have been used, would have the smallest increase in application of fertilizer and would receive a much smaller percentage of the total fertilizer suggested for the bench-mark period than is used at present.

These suggested shifts in use of fertilizer represent a movement toward more stable farming systems. Used in combination with other practices, they would result in restoration of soil fertility lost during wartime cropping, and would maintain fertility at higher levels. There would be more emphasis on use of fertilizers for improvement and maintenance of soil resources. This means a capital investment, as



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FIGURE 5.—Suggested fertilizer consumption and extent of application on land used for crops and permanent pasture.

well as an annual expense that must be met from current income. Over a period of years, and when used in conjunction with the acreage pattern and practices suggested, it means lower-cost production, and ability to provide the abundance of the food most needed for general improvement in nutrition and health for more people. If lower-cost production is reflected in prices of farm products, more people can consume more of the products that represent higher levels of living. This, in turn, enlarges the market outlet for farm products.

The suggested increase in use of fertilizers would be in keeping with an expanding economy. It is analogous to maintaining an abundance of low-cost production in the industrial phase of the economy, in order that a high level of employment may be maintained, and that the total output may be consumed at prices commensurate with their cost. The level of soil fertility is also a matter of public concern, and the role of fertilizer must be considered carefully in educational and other programs pertaining to this problem.

Nine State Committees estimated the quantity of fertilizer that it would pay farmers to use under much less favorable economic conditions, and with

prices to farmers averaging 25 percent below the levels associated with economic prosperity. It is interesting that for these 9 States the estimates of profitable use of fertilizer under the less favorable conditions averaged 88 percent of the suggested economic use under the price conditions outlined in table 2.

From the estimates of profitable use under both levels of economic activity it is apparent that there is considerable lag in the adoption of improved fertilizer practices. The point can be made, of course, that if farmers immediately shifted to the higher level of use the output of farm products would be so large that the assumed prices would no longer prevail. This is also true of such improvements as use of hybrid corn, or the shift from animal to mechanical power.

The answer to the general problem of increased production resulting from technological improvement lies partly in the fact that if the improvement actually results in lower costs per unit, farmers can accept lower prices without sacrifice of income. In fact, with lower costs per unit and more units of product to sell, the farmers who adopt improved practices have considerable defense against the im-

pact of lower prices. Farmers who cannot adopt improved practices may need assistance in shifting to other enterprises, or even into other employment. But the Nation's welfare requires encouragement of progress in reducing costs and maintaining soil fertility, even though counter measures will be needed to help those who are disadvantaged by rapid adoption of improved methods.

Livestock practices.—State Committees estimated the extent to which it would pay farmers to adopt or increase the use of improved practices in the production of each kind of livestock. The individual practices suggested by State Committees have been summarized into five groups: (1) Providing more and better concentrates, (2) providing more and better roughage and pasture, (3) improv-

ing breeding and selection, (4) improving sanitation practices, and (5) controlling parasites and diseases.

The bench-mark estimates were made in terms of the percentage of the numbers of livestock or the units of production on which it would pay farmers to use improved practices. Similar estimates were made of the extent to which the same practices were used in 1943. The State Committees suggest significant increases in the use of each group of production practices for each kind of livestock. A table on page 35 of the statistical supplement to this report gives a detailed summary by groups of practices and by kinds of livestock.

The effects of greater use of improved production practices on the efficiency of livestock production are discussed in the later section of this report that deals with individual commodities.

IMPLICATIONS OF PRODUCTION AT BENCH-MARK LEVELS

GENERAL ASPECTS

In the preceding discussion farming adjustments after the war have been outlined in terms of the level and pattern of production, and the production practices that it would pay farmers to achieve under defined conditions of economic prosperity. *These adjustments would be profitable to farmers, providing they could count on receiving the prices for farm products that were assumed to be part of the prosperity framework. It should be emphasized again that the estimates represent combined judgments of what it would pay farmers to do if the assumed conditions were to prevail. They are not estimates of what farmers will do even under the prices assumed because there is a lag in adopting practices that would pay. But they do indicate the shifts in production, and the practices that would be profitable if prosperity conditions prevail for a long enough period to permit these adjustments to be made.* The results of this study indicate that it would be profitable to produce more of some products than would be likely to find a market at the prices used as a part of the framework materials. Put another way, this means that the actual level of farm prices would be lower if total production reached the levels indicated as profitable under the prices assumed.

These bench-mark estimates of farm production should be considered as the potential of the agricultural sector in a national economy geared to full production in all other sectors. They fit into a setting of full employment, high industrial activity, a large volume of international trade, and a high level of national income. They would provide abundant food supplies for high-level nutrition. On the production side, they are geared to maintenance or improvement of the farm plant (including the soil resources) and development of systems of farming that would stabilize agriculture and be profitable to farmers over a period of years.

Application of the principle of maintenance of the farm plant as applied to soil resources resulted

in suggestions for large increases in hay and pasture, with an offsetting reduction in intertilled crops and idle land. More hay and pasture means more meat and milk, which is in harmony with the objectives of high purchasing power and high-level nutrition.

The suggested extent of use of improved production practices would continue but at a somewhat slower rate than the rapid technological advances experienced in the war years. The practices suggested are, for the most part, the proven methods which agricultural scientists are now recommending for adoption by farmers, irrespective of economic conditions. However, a large measure of agricultural prosperity would be necessary to justify accelerated rates of adoption or increased use of many of these practices; and, in addition, more intensive educational and operations programs would be needed to close the gap between prevailing and suggested improvements in production.

If the suggested improvements were carried out crop production per acre, with average weather conditions, would be increased one-third over the pre-war years 1935-39; and would be 8 percent above the high level achieved in 1944—a year when the weather was better than average for farm production. If output per acre were maintained at this high level, and the suggested patterns of production were carried out, gross farm production would increase in about these same proportions. With continued increases in mechanization and other efficiency measures, fewer workers would be needed than in 1944, and production per worker would be increased about 9 percent, even after allowing for a desirable shortening of peak-season work days, as soon as farmers can afford to slacken the wartime pace.

Postwar bench-mark production should be considered as a first footing of a trial balance on the production side. The other side of the ledger is an appraisal of market outlets under the same economic conditions. Considering the bench-mark estimates as a first approximation in this balancing process,

it is apparent that the responses that would be profitable for farmers under the specified price conditions would result in larger production of some products than the market could absorb at the prices assumed. Consequently, further balancing is needed in some commodities in order to achieve a stable equilibrium of production, consumption, and prices, for the product that would bring equitable returns to farmers under prosperity conditions. The benchmark estimates considered in this report represent only one step in working out desirable postwar production objectives. They are first approximations of the production shifts, and the quantities of each commodity that would be profitable under the price conditions indicated in table 2.

At the present time, it is not possible to forecast the level of economic activity that will prevail in postwar years because conditions will be greatly affected by the kind of decisions that are made on national and international problems in the transition years. If those decisions are made wisely, the sustained prosperity assumed in the benchmark estimates can be achieved. Alternative adjustments for lower levels of economic activity also should be considered; and at a later stage corrections should be made for the conditions actually in prospect. To a considerable extent these corrections can be made from year to year, and as a part of analyses that give primary attention to short-term problems.

Even at the trial-balance stage, the results of this study point the *direction* of desirable adjustments. Year-by-year studies can be designed to analyze the *amount* of change that should take place in view of economic conditions actually in prospect.

COMMODITY CONSIDERATIONS

Cotton.—Special attention needs to be given to the market implications under prosperity conditions of the suggested benchmark production of some commodities. For example, 23 million acres of cotton is suggested. This is only 82 percent of the 1935-39 acreage, but is 15 percent higher than the extremely low acreage of 1944 and the suggested yields per acre represent only a continuation of the upward trend experienced in recent years. But if an average yield of 306 pounds of lint per acre were achieved on the suggested acreage, nearly 15 million bales would be produced. This is considerably more cotton than it is now estimated that the postwar domestic and foreign market would take at the assumed price of 13 cents per pound—even under prosperity conditions. This means that the production part of our trial balance does not fit our appraisal of market outlets. Adjustments will need to be made—either to grow less cotton and more of other products, or to accept a lower price for the cotton produced—which in turn would facilitate upward adjustments on the market and consumption side.

Perhaps further adjustments will be needed, such as the shifting of higher cost producers to the production of other products—and a reduction in the cost of production that would permit efficient pro-

ducers to produce at costs much below present levels, increase their volume of production, and maintain their incomes by producing larger quantities of cotton at lower unit costs. The greatest hope for cotton producers in the United States lies in decreasing production costs. Further mechanization and increased yields per acre represent two ways of reducing unit costs. The opportunities for introducing cost-reducing measures are not the same in all areas, or even on all farms within a single area. Therefore, production of cotton should be increased only in those areas and on those farms favorably situated to take advantage of production efficiencies. Farmers who are less favorably situated will need to shift to other enterprises or to find nonfarm employment.

Use of tractor power and associated equipment in the postwar years, including the mechanical pickers and strippers, will reduce materially the number of workers needed to produce cotton. If these machines are generally adopted the labor required for producing a bale of cotton will be reduced to one-half, or even to one-third of the requirements with mule power and hand picking. Some producers will be able to shift into other lines of farm production but many workers will find it necessary to seek nonfarm employment.

If the displaced farm workers could find nonfarm work, a gradual mechanization of cotton farming would relieve the pressure of population on land resources, and would increase the output and the income per worker of those who remain on farms. In the years immediately preceding World War II, the Southern States had more than half the total number of farm workers and less than one-third of the Nation's cropland. The South Atlantic States had only 16 acres of cropland per farm worker—compared with a national average of 39 acres, and 90 acres in the West North Central States.

Farmers in the South will gradually mechanize production in the postwar years, even under conditions of economic adversity. But under such conditions the displaced workers could not find employment in other occupations; and farmers who could not reduce their costs of producing cotton would not be able to shift to alternative lines of production. The result would be unemployment and disastrously low farm incomes in the South. Under conditions of economic prosperity the workers no longer needed in cotton production could be given assistance in finding jobs to produce the nonfarm products and services that are bought by Southern people when they have adequate purchasing power. And some of the farmers who would be disadvantaged in cotton production could then shift to producing milk, meat, and fresh fruits and vegetables for the adjacent cities and towns which would grow larger with expanding industry.

Wheat.—The suggested bench mark for wheat is 62.7 million seeded acres. This acreage represents effective sustained use of land, labor, and equipment in specialized wheat areas; and the acreage of wheat needed to balance rotations in other areas. With the possible exception of the soft-red winter wheat

States, less wheat would result in some idle land or use of some land for crops less well adapted than wheat. But this acreage, and the yields per acre estimated for average weather conditions, would result in a wheat crop of more than 900 million bushels. This is at least 100 million bushels of wheat more than would be needed for domestic food consumption, for seed, for normal feed uses, and for prospective exports.

In wheat as in cotton, therefore, the assumed price (\$1.10 per bushel for wheat) would result in a larger output than the market would be likely to take at that price, even under prosperity conditions. Here again adjustments are called for in the form of reduced acreage, acceptance of lower prices, or other measures to facilitate increased utilization. Wheat is an excellent livestock feed, and a large volume of wheat could be fed to livestock at prices that are comparable to the prices of feed grains, on a feed-unit basis.

Wheat farming is almost completely mechanized in the major producing areas. But even where mechanization is most complete the size of farm and the organization of wheat production has not been changed to take full advantage of the opportunity of producing more wheat per farm at lower unit costs. Even with only partial adjustment to mechanization the hours of human labor required in wheat production now are less than half the hours required before World War I.

If by consolidation of small units the sizes of farms could be adjusted to the acreage that can be easily handled by a farm family, with existing tractor equipment, the volume of production per farm could be increased and the costs reduced, and net incomes per family could be maintained with wheat prices below the national average of \$1.10 per bushel assumed in this study. But fewer farmers would be engaged in wheat production. Such an adjustment therefore is dependent upon the conditions of economic prosperity assumed in this study, and on the availability of nonfarm employment for those who are not needed in wheat farming.

Oil crops.—Although sharp acreage decreases were suggested for all of the oil crops, the increased yields per acre that were indicated for peanuts actually would result in a small increase over 1943 in the quantity of peanuts picked and threshed. Production of flaxseed and of soybeans for beans would be reduced considerably below wartime levels. But production of all three oil crops would be much above the immediate prewar levels.

Obviously the market outlook for oilseeds produced in the United States is associated with the prospective market for oilseeds in other countries, the kind of trade relations that are developed with other nations, and with the restoration of oil enterprises in the Tropics. Domestic oilseed producers, therefore, are likely to face rather severe postwar competition. With the higher yielding varieties that are now coming into use, and with the improved practices suggested for adoption, producers in this country should achieve a greater competitive ad-

vantage, especially in the production of soybeans and peanuts than they had in prewar years.

The domestic market for edible peanuts was greatly expanded during the war period, and it seems probable that it will remain at high levels after the war. It also seems likely that a much larger peanut acreage will be hogged off than in the prewar period. These uses of peanuts introduce an element of flexibility in utilization that will permit maintenance of a larger total acreage. Further mechanization of production resulting in lower labor requirements would also help Southern farmers to grow relatively large acreages of peanuts.

In considering market outlets for the oilseed crops it is important to remember that oil meals constitute most of our high-protein livestock feed. The possibility of supplying livestock producers with oilseed meals from nearby producing areas is one element that favors retention of a fairly large acreage, especially of soybeans.

Potatoes and sweetpotatoes.—At the prices assumed for potatoes and sweetpotatoes, the suggested production appears to be much larger than the potential market outlets. These are specialty crops in which yields per acre are highly responsive to use of commercial fertilizer and other improved practices. The suggested yields are 22 percent above the 1937-41 average for potatoes and 31 percent higher for sweetpotatoes. A further balancing of the acreage of these two crops with market outlets for food uses at a lower price level than assumed seems necessary, especially if such large increases in yield are achieved.

In the South, the possibility of producing sweetpotatoes for use as feed might develop into an important enterprise in postwar years. However, this development depends upon mechanization of production, adoption of higher yielding feed varieties, and the introduction of low-cost methods of dehydration and storage for feed uses which would permit sweetpotatoes to compete successfully with other feeds on a price basis.

Truck crops.—The suggested high-level production of fresh and processed vegetables needs to be considered in relation to the upward trend in per capita consumption of these products over a period of years, and the further increase in consumption that would be desirable for high-level nutrition. Vegetable consumption is responsive to increased consumer purchasing power, and to consumer education.

The postwar years may see important changes in vegetable-producing areas, and in the different kinds of vegetables that are produced, because of new developments in quick freezing, in transportation, and in other methods of distribution. It seems probable that quick-frozen vegetables will obtain a larger share of the total market for vegetables after the war. This might be achieved by capturing a larger part of the increase in consumption rather than by actual reduction of the market for fresh vegetables, and for those processed by other methods. If the production of vegetables is increased rapidly, some

downward price adjustments undoubtedly will be necessary, but producers of vegetables adjust their acreages rather quickly to the market prospects.

Tobacco.—The postwar market prospects for cigarette types of tobacco seem rather favorable at the present time. Under conditions of economic prosperity the level of consumption in this country would be large; and exports would be increased considerably over prewar years. The suggested 37 percent increase over 1937–41 in tobacco production might find a market without much concession in price under those conditions.

Tobacco, among the major farm crops, requires the most intensive labor. It seems desirable, therefore, that production be distributed in a way that permits the growing of tobacco as an intensive cash crop on a large number of farms in the areas suitable for its production. This objective is reflected in the suggested changes in geographic distribution of acreage.

Livestock.—As already indicated, one of the most important production changes involved in the benchmark estimates is the large increase in hay and pasture, and the considerable decrease in corn acreage. Livestock production was considered in relation to the kind and volume of feed supplies that would be available. This resulted in suggestions for maintaining the total number of animal units of livestock at about 1943 levels. However, the relative importance of the different kinds of livestock would be changed. Cattle numbers would be maintained slightly above the record levels achieved in the war years, with more emphasis on dairy cattle. It should be recalled that the decrease in horse and mule numbers since 1918 has made room for over 16 million additional cattle and calves even without increasing the total feed supply. Using cattle to consume a part of the feed formerly used by horses and mules means a geographic shifting of cattle numbers. A larger part of the cattle population would be maintained in the humid areas than in former years. Cattle numbers in the range States would be adjusted to produce the maximum sustained output of beef from the available range and winter forage.

Bench-mark hog production would be below the wartime peak levels, but would average considerably larger than in the immediate prewar years. Taking all meat animals together, the production of meat would be maintained approximately at wartime levels. With allowance for exports of pork at the 1920–29 average, this would mean an average domestic consumption of all meat, including poultry, of 193 pounds per capita, as compared with 176 pounds for civilians in 1944. It is recognized that the assumed high level of consumer purchasing power would be needed, along with export markets for part of the pork production, in order that such a high level of meat production might find a profitable market. However, wartime experience has demonstrated how the market outlet for meat can increase when national income is high and also widely distributed. Civilians complained of a shortage of meat in 1944 with per capita consumption only 10 per-

cent below the quantities that would be available at bench-mark production levels.

Egg production at an average farm price of 29 cents per dozen would be even higher than the peak year 1944. It seems apparent that some further balancing of production, prices, and consumption is needed in this enterprise.

The tremendous increase in egg production in the war years has centered in the areas that can produce eggs more largely on home-grown feeds. Eggs are produced in these areas as a supplementary rather than a specialized enterprise. It seems likely that producers in these areas will retain a competitive advantage in egg production after the war, provided their production practices are improved sufficiently to meet the competition of the specialized areas.

The suggested production of milk is about one-fourth larger than in 1944. Obviously, it would require a period of years to achieve so large an increase. But this quantity of milk is about what would be needed to provide adequately for all of our domestic consumers on a high-level nutrition basis. Civilian consumption would average 1,028 pounds per capita on a milk-equivalent basis, as compared with 789 pounds to civilians in 1944, when manufactured dairy products were rationed.

Under wartime conditions the consumption of fluid milk per capita increased more than 40 percent from 1939 to 1943, in some of the northeastern cities.³ If a high and widely distributed per capita income is maintained, and if a program of consumer education is instituted to stimulate milk consumption, it should be possible, over a period of years, to balance the potential production with the market outlets that would result in a per capita milk consumption high enough for nutritional adequacy in all consumer groups. Extra market distribution of milk for low-income people and for special groups, such as for school lunches, would need to be developed—to supplement consumer purchases at market prices that would stimulate consumption.

Utilization of new developments in the manufacture of whole milk and nonfat powders seems to present an opportunity to expand market outlets. New techniques in cheese making, and the manufacture and use of ice-cream powders and mixes also should increase considerably the total output of manufactured dairy products. Courageous pricing policies may need to be developed—policies that gear into a consumer-education program which gives a price emphasis to increased consumption and at the same time emphasize the desirability of supplying the food nutrients that should be provided by milk in a high level of nutrition.

BALANCED PRODUCTION

The suggested shifts in the direction of more hay and pasture and less intertilled crops, more meat and milk, and more fruits and vegetables would provide

³ See table 1, page 5. Consumption of Fluid Milk and Cream in Northeastern Marketing Areas 1943. Bureau of Agricultural Economics, 1945.

a basis for the achievement of high-level nutrition under conditions of economic prosperity; they would also represent one of the more important steps toward maintenance and improvement of soil resources. They would result in development of stable, soil-maintaining systems of farming that would be profitable to farmers under the assumed price conditions.

The changes suggested also supplement each other in other ways. Beef production is a land-consuming enterprise. On the other hand, milk, and fruit and vegetable production are labor-consuming enterprises. Suggested increases in these enterprises, therefore, would tend to utilize more effectively the Nation's resources in both land and labor. However, this desirable combination is dependent upon a price structure that would make these changes profitable.

It is evident from the preceding discussion that further balancing is needed along some lines, even under the prosperity conditions assumed. If the limitation of market outlets compels growing less cotton, wheat, and potatoes than is indicated in the bench-mark suggestions, further shifts from those products would be needed; and that would tend to increase production of other products—providing the land is farmed at the same level of intensity. Such adjustments would cause further pressure on market outlets of other products.

An alternative way of balancing production and market outlets would be to expand the uses of cotton and wheat by accepting lower prices, which might be offset by cost reductions accomplished through adoption of mechanization and practices that increase yields. Another method of balancing would be to farm the land less intensively—in other words, to make less progress in increasing yields per acre—by retarding the suggested rate of increase in the use of commercial fertilizer and other improved practices that require cash outlay.

Perhaps a combination of all these methods would be used by farmers to balance production with market outlets under prosperity conditions. With a high level of national income such adjustments would be manageable. Farmers could make the necessary changes and still maintain incomes at satisfactory levels. Under economic conditions that result in considerable unemployment and lower national income it would be very difficult to adjust agricultural production to shrinking market outlets. Farm incomes would drop to low levels.

BENCH-MARK ESTIMATES COMPARED WITH PRODUCTION UNDER LESS FAVORABLE CONDITIONS

Alternative adjustments for lower levels of economic activity need to be considered in analyzing postwar problems, as previously indicated. Under such conditions important shifts in production would be called for; but when the market outlet is too small to absorb the total volume of farm production the problem cannot be solved by shifting the emphasis from one commodity to another. The

solution lies in expanding the total market for farm products. Although downward adjustments can be made in the production of certain products, the total volume of farm production is rather unresponsive to lower prices.

Even with a considerably lower level of farm prices, production would not be likely to decrease much below wartime levels. Once investments for capital improvements have been made in farming they constitute fixed resources that will be used almost regardless of changes in the price of the product. The tractors and other farm machinery that will be bought immediately after the war will be on hand to use for several years. And unemployment in the nonfarm occupations would result in pressure of workers on the land. On the other hand, such improved practices as the one of commercial fertilizer involve variable rather than fixed costs; and decreasing the use of these practices in a period of relatively low economic activity would have some effect on the level of production. But this would tend to be offset by the effect of more workers on farms.

Twelve State Committees studied in considerable detail the production adjustments that would be most profitable to farmers under conditions of lower national income and considerable unemployment. The following specific conditions were assumed:

- (1) Unemployment would average 7 million workers, instead of 2 million under more favorable conditions.
- (2) National income would be \$105 billion instead of \$150 billion.
- (3) Cash income from farm marketings would be \$12 billion instead of \$16.5 billion.
- (4) Prices received for farm products would average about 90 per cent of parity, but the actual level would be 25 percent below the prices received under conditions that would result in a national income of \$150 billion.

Nine State Committees completed estimates for the two economic levels in such a way that comparative summaries could be made. These include two Northeastern States, one Appalachian State, two Southeastern States, one Mississippi Delta State, and two Corn Belt States. These States do not represent conditions over the entire country, but they are indicative of important problems that would arise if lower levels of economic activity should prevail.

Table 14 compares the suggested production of some of the more important products under the less favorable economic conditions with the bench-mark suggestions. It also gives a comparison of the major uses of land under the two situations. Although the suggested total amount of land used for crops would be the same, the intertilled acreage would be somewhat larger. The suggested acreage of cotton actually would increase, partly because the assumed price of 12 cents per pound would not represent as great a price reduction as was indicated for some competing products. More land in cotton would also be partly an indication that more workers were seeking a living on the land because they could not find nonfarm employment.

It is apparent from table 14 that the suggested

direction of change from wartime production is not greatly different under the two levels of economic activity. Crop yields would be lower under less favorable conditions, partly because less commercial fertilizer would be used, and partly because there would be less progress in the adoption of other improved practices that require cash outlay. Livestock production per animal also would be lower. But even with the suggested reductions in production of some important commodities, the pressure of supplies on market outlets would be much greater than under the relatively favorable economic conditions assumed for the bench-mark estimates.

Comparison of desirable farming adjustments under the two different levels of economic activity strengthens the evidence of dependence of agricultural prosperity on high-level employment and national income, and on a large volume of international trade. If a high level of economic activity cannot be maintained in the postwar years there is trouble ahead for the farmers of the United States.

The organization of the farming industry and the nature of the costs of farming are such that farming does not lend itself to decreases in total volume of farm production in a period of shrinking market outlets. With ever-increasing efficiency in farm production, even under depression conditions, effective shrinkage of the size of the farm plant means employment of fewer workers in agriculture. Only under conditions of prosperity, when other employment opportunities are available, will it be possible for the workers who are no longer needed in agriculture to find nonfarm work. However, agriculture cannot afford to stop the march of technology. It must keep in step with progress in other industries, and with agriculture in other countries. This means that policies concerned with the improvement of

agriculture in the interest of national welfare should center on providing a wide market outlet for farm products and on assistance to those who are temporarily disadvantaged by production changes.

TABLE 14.—*Suggested production levels under 105 billion dollar national income conditions, compared with bench-mark levels for States making both estimates*

| CROPS AND LAND USED FOR CROPS | | | |
|--|--|---------------------------------|------------|
| Item | Percent of bench-mark estimates suggested with less favorable conditions | | |
| | Acreage | Yield | Production |
| | Percent | Percent | Percent |
| Corn ¹ | 99 | 95 | 94 |
| Hay, all tame | 101 | 82 | 83 |
| Cotton, all ¹ | 115 | 93 | 107 |
| Soybeans, for beans | 98 | 92 | 90 |
| Peanuts picked and threshed | 113 | 94 | 106 |
| Total intertilled crops .. | 102 | ..... | ..... |
| Total close-growing crops | 97 | ..... | ..... |
| Total sod crops | 100 | ..... | ..... |
| Total land used for crops | 100 | ..... | ..... |
| LIVESTOCK AND LIVESTOCK PRODUCTS | | | |
| Item | Unit or base | Percent of bench-mark estimates | |
| All cattle and calves | 1,000 head on Jan. 1 | 95 | |
| Cows kept for milk, 2 years old and over.... | 1,000 head on Jan. 1 | 98 | |
| Milk produced | Million pounds | 96 | |
| Eggs produced | 1,000 dozen | 104 | |
| Hogs, net production ... | 1,000 pounds | 93 | |

¹ Planted acres, all others harvested acres.

II. COMMODITY ADJUSTMENTS—CROP PRODUCTION

In this section the bench-mark acreage, yield, and production of each of the principal crops is analyzed in relation to wartime and prewar levels. This more detailed discussion is of interest mainly to readers who are concerned with specific commodities and the suggested adjustments in the areas where those commodities are produced. Important changes in acreage are suggested for many crops. But their effects on production are overshadowed in a number

of instances by the increases in the yield per acre that would accompany adoption of the improved cropping practices that were discussed on page 11. *Here, as in previous sections, there are no forecasts of what future production will be. The postwar bench marks are first estimates by State Production Adjustment Committees of what it would pay farmers to do under prosperity conditions.*

OIL AND FIBER CROPS

The three oil crops—soybeans, peanuts, and flaxseed—have been recognized in the war years as important sources of oil so urgently needed in the war effort. In addition the consumption of edible peanuts has been greatly increased, in both military and civilian channels. The prospective postwar slackening of demand for oilseeds from domestic production was recognized in the framework materials provided for this study. And the bench-mark estimates on the oil-crops group suggest postwar production at levels below the wartime peaks, but still far above prewar levels.

Cotton is an important oil-bearing crop, as a by-product of fiber production. But the high labor requirements for cotton production in a period of labor stringency, together with the ample supplies of cotton fiber (except for a longer staple), have tended to hold down the acreage of cotton in the war years. Bench-mark suggestions for cotton call for increases in both acreage and yields per acre that need to be considered in relation to prospective market outlets. (See discussion on page 26.)

SOYBEANS

Commercial production of soybeans was in the developmental stage in the two decades before the war. From 1925 to 1941 the acreage planted for all purposes increased from 1.5 million acres to more than 10 million acres (fig. 6). During the same period the acreage harvested for beans increased from less than half a million acres to almost 6 million acres. From 1937 through 1941 the annual increase in the acreage harvested for beans averaged almost a million acres.

Under the stimulation of wartime demand and the Government price-support program farmers planted about 3.75 million more acres in 1942 than in 1941 and harvested about 4 million more acres for beans.

Both the acreage planted and the acreage harvested increased almost another million acres from 1942 to 1943. In 1944 the acreage planted for all purposes dropped back to the 1942 level but the acreage harvested for beans remained about the same as in 1943.

A part of the wartime demand for larger quantities of domestic vegetable oils arose because of the stopping of imports from areas occupied by the enemy. Those sources of supply will be restored by the return of peacetime conditions, and domestic vegetable oils again will be marketed in competition with foreign-grown oils.

If the demand for domestic vegetable oils declines in the postwar period so as to narrow the relationships between the farm prices of soybeans and competing crops as assumed in this study (\$1.70 per bushel for soybeans and 90 cents for corn), State Committees estimate that a postwar bench mark for profitable production of soybeans in the United States would be about 157 million bushels, or 19 percent less than was produced in 1943.

The suggested reduction of one-third in the acreage of soybeans in the United States is largely a reflection of opportunities for further increases in the yield per acre, through the use of improved varieties, better cultural practices, and planting the smaller acreage on land that is better adapted to soybeans. The opportunities for increasing the yield per acre are estimated to be better in the Mississippi Delta and the border areas of the Corn Belt than in the central part of the Corn Belt, where improvements are already further advanced. For example, the possibilities for increasing yield per acre are estimated to be 26 percent above the 1937–41 average in the Delta and 23 percent above that average in the Lake States compared with a 20 percent increase in the central Corn Belt.

The suggested acreage reduction of 35 percent from 1943 for the Corn Belt is greater than that in

TABLE 15.—United States acreage of principal crops: Postwar bench mark with comparisons

| Use of land | 1937-41 | 1943 | Postwar bench mark ¹ | Percentage postwar bench mark is of— | |
|--|--------------------|--------------------|------------------------------------|--|----------------|
| | | | | 1937-41 | 1943 |
| | <i>1,000 acres</i> | <i>1,000 acres</i> | <i>1,000 acres</i> | <i>Percent</i> | <i>Percent</i> |
| Soybeans, grown alone | 8,778 | 14,575 | 10,042.0 | 114 | 69 |
| Peanuts, grown alone | 2,361 | 5,094 | 3,328.3 | 141 | 65 |
| Flaxseed | 2,307 | 6,299 | 2,867.6 | 124 | 46 |
| Cotton, all | 26,357 | 21,942 | 23,308 | 88 | 106 |
| Potatoes | 2,913 | 3,440.7 | 3,451.6 | 118 | 100 |
| Sweetpotatoes | 740.9 | 907.3 | 1,004.3 | 136 | 111 |
| Tobacco, all ² | 1,614.1 | 1,451.9 | 1,834.2 | 114 | 126 |
| Sugar beets | 914 | 616 | 986 | 108 | 160 |
| Sugar cane for sugar ² | 266 | 286.2 | 315 | 118 | 110 |
| Dry field peas | 280 | 832 | 408.7 | 146 | 49 |
| Beans, dry edible | 1,977 | 2,673 | 1,935.4 | 98 | 72 |
| Vegetables for processing | 1,485.2 | 2,109.8 | 2,035.1 | 137 | 96 |
| Vegetables for fresh market ² | 1,730.5 | 1,573.5 | 1,942.1 | 112 | 123 |
| Wheat, all (net planted) ³ | 69,145 | 54,435 | 62,707.7 | 91 | 115 |
| Corn | 91,975 | 96,786 | 88,406.7 | 96 | 91 |
| Oats | 39,646 | 42,796 | 45,125 | 114 | 105 |
| Barley | 14,290 | 17,304 | 15,279.9 | 107 | 88 |
| Rye, for grain ² | 3,700 | 2,755 | 2,363.9 | 64 | 86 |
| Sorghums, all except sirup | 17,070 | 17,324 | 17,950.9 | 105 | 104 |
| Hay, all tame ² | 57,197 | 60,880 | 68,263 | 119 | 112 |
| Hay, all tame, except soybean, cowpea, peanut, and small grain ² | 45,394 | 49,283 | 58,485.2 | 129 | 119 |

¹ Reports of State Production Adjustment Committees,
December 1944.

³ Excludes the acreage of abandoned winter wheat that is
reseeded to spring wheat.

² Harvested acreage. All others are planted acreages.

TABLE 16.—United States production of principal crops: Postwar bench mark with comparisons

| Crop | Unit | 1937-41 | 1943 | Postwar bench mark ¹ | Percentage postwar bench mark is of— | |
|------------------------------------|--------|--------------------|--------------------|------------------------------------|--|----------------|
| | | | | | 1937-41 | 1943 |
| | | <i>1,000 units</i> | <i>1,000 units</i> | <i>1,000 units</i> | <i>Percent</i> | <i>Percent</i> |
| Soybeans for beans | Bushel | 76,253 | 193,125 | 156,826 | 206 | 81 |
| Peanuts, picked and threshed | Pound | 1,391,951 | 2,184,760 | 2,390,006 | 172 | 109 |
| Flaxseed | Bushel | 19,576 | 51,946 | 28,362 | 145 | 55 |
| Cotton, all | Bale | 13,203 | 11,427 | 14,938 | 113 | 131 |
| Potatoes | Bushel | 361,218 | 464,999 | 524,390 | 145 | 113 |
| Sweetpotatoes | Bushel | 62,601 | 73,380 | 111,094 | 177 | 151 |
| Tobacco, all | Pound | 1,511,904 | 1,402,988 | 2,063,942 | 137 | 147 |
| Sugar beets | S. ton | 10,757 | 6,532 | 13,657 | 127 | 209 |
| Sugar cane for sugar | S. ton | 5,417 | 6,081 | 7,455 | 137 | 123 |
| Dry field peas | Pound | 251,160 | 1,087,000 | 550,262 | 219 | 51 |
| Beans, dry edible | Pound | 1,639,540 | 2,092,200 | 1,818,379 | 111 | 87 |
| Wheat, all | Bushel | 858,288 | 841,023 | 914,373 | 107 | 109 |
| Corn, all | Bushel | 2,582,151 | 3,034,354 | 3,243,157 | 126 | 107 |
| Oats, for grain | Bushel | 1,129,976 | 1,137,504 | 1,557,425 | 138 | 137 |
| Barley, for grain | Bushel | 285,540 | 324,150 | 311,450 | 109 | 96 |
| Rye, for grain | Bushel | 45,751 | 30,452 | 31,615 | 69 | 104 |
| Sorghums, for grain | Bushel | 77,075 | 103,864 | 130,885 | 170 | 126 |
| Hay, all tame | Ton | 79,846 | 87,244 | 121,969 | 153 | 140 |

¹ Reports of State Production Adjustment Committees,
December 1944. These quantities are estimates of what it
would pay farmers to produce under the conditions assumed.
They are not estimates of what farmers would produce under

those conditions. In contrast the quantities shown in Mis-
cellaneous Publication No. 562 are estimates of quantities
that consumers would purchase and that farmers would be
likely to produce on the basis of past production responses.

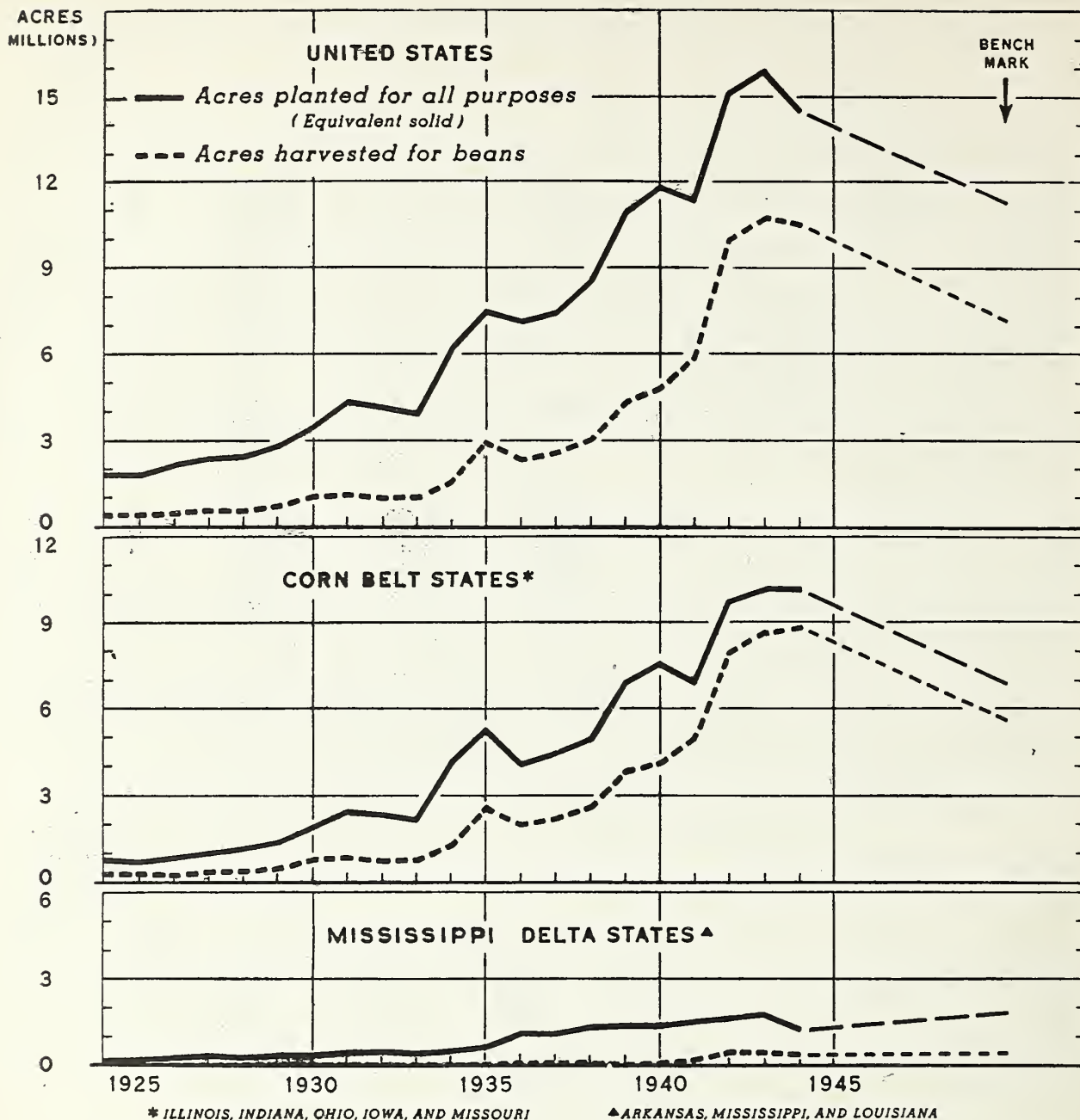


FIGURE 6.—Soybeans: Acreage planted for all purposes and acreage harvested for beans, United States, Corn Belt, and Mississippi Delta States, 1924-44 and postwar bench mark.

other important soybean areas, partly because of less opportunity for increasing yields and partly because of greater competition from other crops. Essentially no decrease is estimated for the Lake States, and the acreage in the Mississippi Delta and on the southwestern border of the Corn Belt would be about the same as in 1944. In all areas the estimated reduction from 1943 is about the same for acreage planted and for acreage harvested for beans.

PEANUTS

Peanuts have been a wartime crop of first importance. The great expansion in acreage that has occurred during the war poses a difficult problem in making the readjustment to peacetime needs. The acreage of peanuts grown alone in 1943 (5.1 million acres) was more than double the average acreage in the prewar years, 1937-41.

State Committees suggest that, at the prices as-

PRODUCTION OF PEANUTS PICKED AND THRESHED, BY GROUPS OF STATES

POSTWAR BENCH MARK WITH COMPARISONS

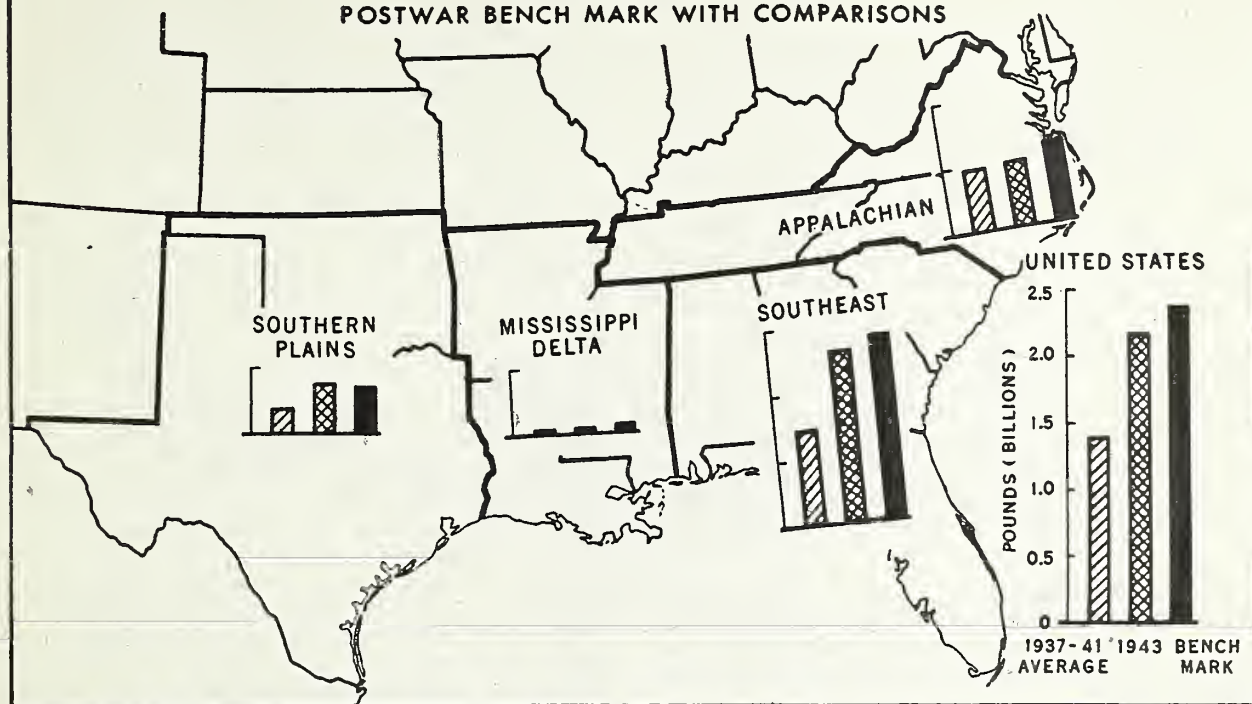


FIGURE 7.—Production of peanuts.

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sumed to prevail under prosperity conditions, it would be profitable for farmers to grow 3.3 million acres of peanuts (grown alone) for all purposes in the postwar period. This is 41 percent above the average acreage in 1937-41, but 35 percent less than in 1943 (fig. 7). The indicated acreage to be picked and threshed is 2.6 million, or 44 percent above the 1937-41 average and 27 percent less than the average harvested in 1943.

If farmers adopted the improved practices that would be profitable under favorable conditions the yield per acre would be increased 20 percent over the prewar acreage; and the total production of peanuts picked and threshed would be 2.4 billion pounds, 72 percent above the average production in 1937-41 and 9 percent above the peak wartime output in 1943.

Virginia-North Carolina area.—In the Virginia-North Carolina area peanut acreage has expanded less than 20 percent during the war. For many years the acreage in this area has remained almost stable. In the commercial production area peanuts are grown once in 3 years on almost all of the suitable cropland. During the war the established rotation has been temporarily shortened to permit peanuts to be grown oftener than once in 3 years on some of the land. State Committees suggest that the postwar acreage will return to prewar levels, but that the adoption of improved practices that would be profit-

able may increase production 28 percent above the average obtained in 1937-41 and 24 percent above 1943.

Southeastern area.—During the last 25 years the Southeast has accounted for more than half of the total acreage of peanuts grown alone in the United States, and has averaged half of the United States picked and threshed acreage. The acreage of peanuts picked and threshed increased in this area from an average of a million in 1937-41 to 1.8 million in 1943. Under prosperity conditions in the postwar period, State Committees suggest that it would be profitable to retain half of the wartime increase in acreage. This acreage level would be 40 percent above the 1937-41 average.

It was indicated that it would be profitable to increase yields from an average of 712 pounds per acre in 1937-41 to 976 pounds in a postwar prosperity period. This would be accomplished by improving cultural practices, the wider use of treated and shelled seed, increased dusting, and more fertilizer. The suggested increase in yield of 37 percent above the prewar period, combined with a 40 percent larger acreage, would result in an increase in production of 91 percent. This is 7 percent above the 1943 production for the Southeastern States.

Southwestern area.—In Oklahoma and Texas the acreage of peanuts picked and threshed in 1943

was more than triple the 1937-41 average. It was suggested that a continuation of the expansion in acreage which occurred in the prewar period would be profitable with peanuts, at the assumed price of 5 cents per pound. This would result in an acreage twice as large as that of prewar, but 40 percent less than the peak 1943 acreage. In the expansion of acreage during the war, peanuts have been grown in sections of these States where they had not been grown previously on a commercial basis. A variety of obstacles have been encountered which probably will prevent peanuts from obtaining a permanent place in the farming systems in these sections. In the western part of the area, especially in southwestern Oklahoma, soil moisture does not appear to be adequate for successful production. In the Sandy Lands of northeastern Texas, farmers obtained low yields and experienced difficulties in getting peanuts harvested and marketed from the widely scattered fields in which they were grown. Thus it is expected that most of the peanuts for sale will be grown in areas that were established in peanut production before the war. In the localities where peanuts are grown they are likely to occupy a higher proportion of the cropland than before the war.

Other peanut areas.—The other peanut-growing States—Mississippi, Louisiana, and Arkansas—did not become important in peanut production during the war. It is not expected that they will do so in the postwar period.

FLAXSEED

The suggested bench-mark acreage of flaxseed is 2.9 million acres—about 45 percent less than the record acreage planted in 1943, but 24 percent greater than the average planted acreage in 1937-41. The large demand for flaxseed during the war years, resulted in considerable effort being made by farmers to increase production. Special incentives were offered in 1945 by the War Food Administration in the form of non-recourse loans on the stored product, crop insurance, and acreage payments. Prices have been supported at relatively high levels.

Some of the acreage expansion during the war years was made in areas of rather low yield expectancy; this expansion could not be maintained without special production incentives. In most areas where increases have occurred, other crop alternatives are available, and the downward adjustment in acreage that may be necessary after wartime needs have been met, will not be difficult. Increased weed infestation and soil erosion have occurred during the war years.

As in the 1937-41 period, about 96 percent of the bench-mark acreage would be concentrated in 7 States—Minnesota, North Dakota, South Dakota, Iowa, Kansas, Montana, and California. During the years 1937-41 Minnesota had 46 percent of the total acreage and North Dakota 24 percent. If the suggested postwar pattern were achieved, the Minnesota acreage would be only 31 percent of the total, while North Dakota would increase to 35 per-

cent. The acreage in Minnesota would be about 15 percent less than prewar, while in North Dakota there would be an increase of about 77 percent. All other States would be above prewar acreage levels, with South Dakota and California each about double their 1937-41 average.

The production of flaxseed suggested for the bench-mark period is 28.4 million bushels. This is a 45 percent increase above the 1937-41 average, and results from suggested increase of 24 percent in seeded acreage and a possible increase of 16.5 percent in yield per seeded acre.

Especially significant is the effect that the postwar changes in yields and acreage would have on the production pattern. California's 200,000 irrigated acres would produce approximately the same output as North Dakota's one million non-irrigated acres. Minnesota would produce 41 percent of the total production as compared with 53 percent in the period 1937-41.

In California, where practically all flax land is irrigated and yields are normally high, increases of about 51 percent above prewar yields are suggested as possible and profitable. They would result largely from using more fertilizer, from improved rotation of crops, and weed control. In Minnesota, yields could be increased about 39 percent, primarily by improved rotation of crops and weed control, and with a small increase in the use of fertilizer. Other major producing areas have less spectacular possibilities for yield increases because of their limitations in moisture. Such factors as careful selection of weed-free land for growing flax, the previous use of the land, preparation of seed bed, and timing of operations, would be influential in achieving moderate increases in yield in these areas.

COTTON

The years ahead hold many important problems and adjustments for Southern cotton farmers. Serious competition, at home and abroad, may be expected from synthetic fibers, paper, and other substitute products, and from cotton produced in other countries.

Cotton is deeply ingrained in the fabric of southern farming. Because of limited land and other resources, the operators of many small farms need an enterprise that returns a high cash income per acre. Cotton has filled that place in most of the South, and on many farms it is the only cash enterprise. Even at considerably lower prices than those now prevailing on many farms, cotton would continue to give larger returns per acre than other enterprises.

Increased mechanization, particularly in harvesting, will have important effects upon the cost of producing cotton. But these effects will vary greatly from area to area and even from farm to farm in the same area.

The trend in the acreage of cotton has been downward for several years, and the smallest acreage since 1895 was planted in 1944. Trends in yields, on the other hand, have been decidedly upward, and

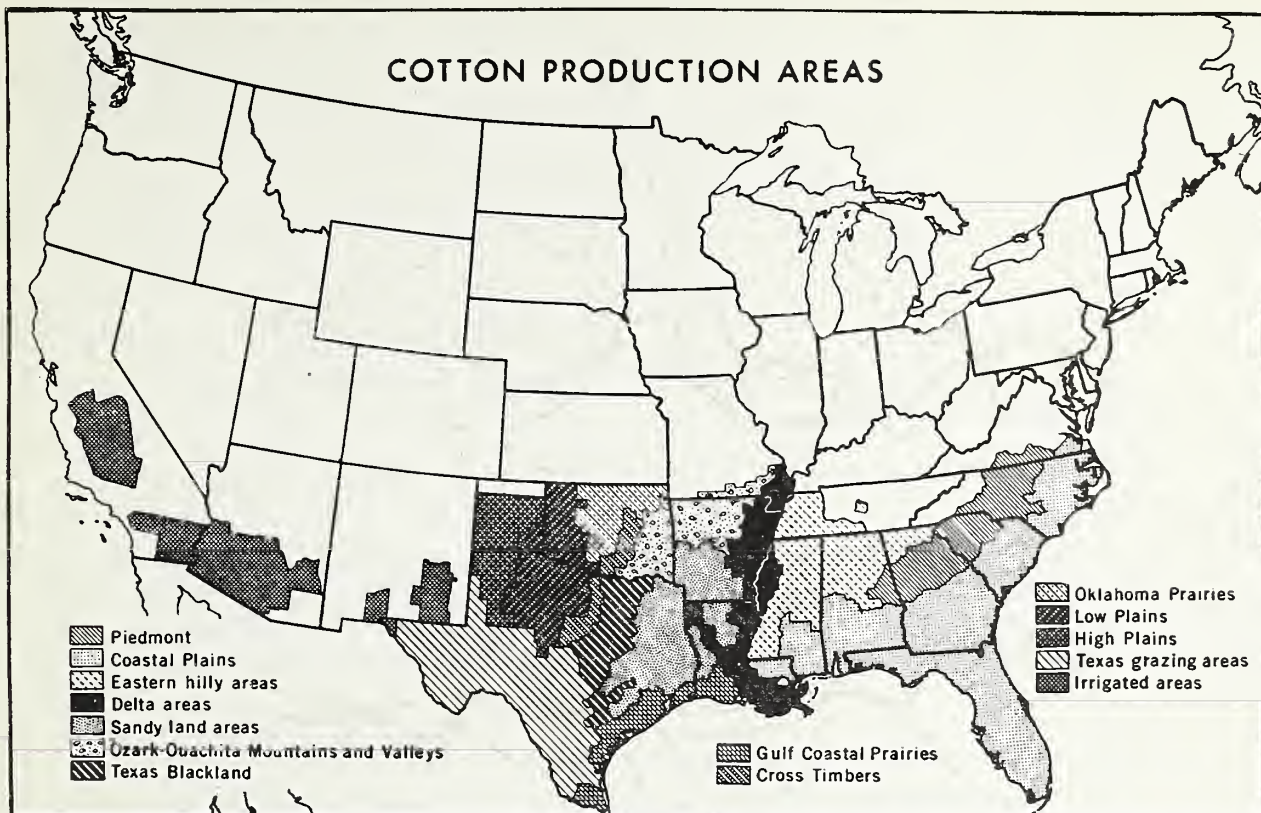


FIGURE 8.—Cotton production.

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in 1944 they reached an all-time peak of about 295 pounds per acre. However, neither the acreage nor the yield trends have been uniform over the entire Belt. (See figs. 8, 9, and 10.) ⁴

These factors, as well as the more specific assumptions previously presented, were considered by the State Committees who made estimates of the quantity of cotton they thought it would pay farmers to produce in the various areas if we have prosperity in the postwar period. They suggest a production of nearly 15 million bales of cotton which is about 1.7 million more bales than the average production during the 1937-41 period and 3.5 million more than the 1943 crop (table 17). This 15-million-bale production would result from planting 23.3 million acres and obtaining an average national yield of 306 pounds per acre. This acreage would be about 10 percent smaller than the 1937-41 average but 5 percent larger than the acreage planted in 1943. The yield of 306 pounds would be about 28 percent above the 1937-41 average, but only about 4 percent above the yield obtained in 1944.

A postwar acreage below the 1937-41 average but above the 1943 acreage was indicated for most States. Compared with 1943 the greatest increases

were indicated for the Delta and the Southern Plains area. Mechanical harvesting of cotton probably will be adopted rather rapidly in these areas after the war. This will reduce production costs and will tend to give cotton an additional advantage over other crops. For example, the Texas report indicates that the labor requirements for producing cotton in the High Plains of Texas could be reduced nearly 14 man-hours per acre by using a 2-row mechanical stripper, as compared with snapping by hand, and that costs, assuming 1943 prices, could be reduced about \$9 per acre or nearly 40 percent. In the Delta areas it is roughly estimated that the use of a mechanical harvester would reduce the labor required to produce a bale of cotton by 90 hours, or about 60 percent. Cross cultivation and the use of the mechanical cotton chopper, the flame cultivator, and other practices designed to eliminate or reduce chopping by hand also will reduce the labor needed. Slight decreases compared with 1943 were suggested for some of the Hill areas in the Delta States.

Compared with that in 1943 a slightly larger acreage was indicated for the Southeastern States. That yields could be profitably increased by extension of improved practices, and the lack of other income alternatives, were the main reasons given for these increases. A slight decrease in acreage was indicated for areas where cotton is produced largely under irrigation. With the assumed 13-cent price for lint,

⁴ A fuller discussion of these trends is presented in *Changes in Cotton Production in War and Peace*, Bur. Agr. Econ. F.M. 45, December 1944. [Processed.]

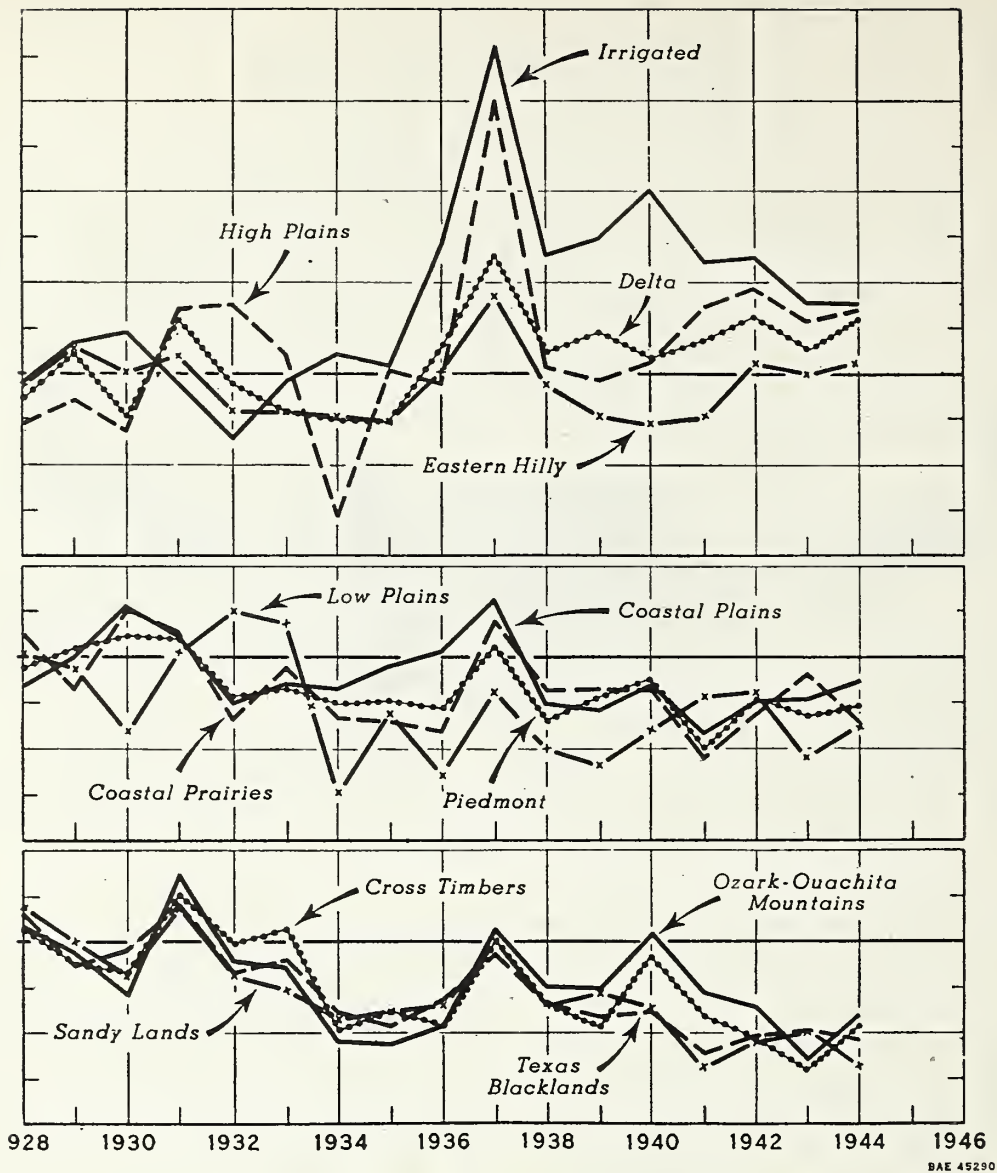


FIGURE 9.—Cotton production as percentage of 1928-32 average, by production areas, 1928-44.

TABLE 17.—Suggested postwar cotton acreage, yield, and production, with comparisons ¹

| Groups of States | Acreage | | | Yield per acre | | | Production | | |
|--------------------|-------------|-------------|-------------|----------------|--------|---------|-------------|-------------|-------------|
| | 1937-41 | 1943 | Postwar | 1937-41 | 1943 | Postwar | 1937-41 | 1943 | Postwar |
| | 1,000 acres | 1,000 acres | 1,000 acres | Pounds | Pounds | Pounds | 1,000 bales | 1,000 bales | 1,000 bales |
| Southeast | 7,394 | 6,063 | 6,362 | 258 | 288 | 386 | 3,968 | 3,643 | 5,138 |
| Delta | 6,710 | 5,803 | 6,474 | 310 | 329 | 403 | 4,317 | 3,997 | 5,465 |
| Texas and Oklahoma | 11,498 | 9,469 | 9,972 | 171 | 161 | 175 | 4,071 | 3,207 | 3,650 |
| Irrigated | 755 | 607 | 500 | 547 | 457 | 655 | 847 | 580 | 685 |
| United States | 26,357 | 21,942 | 23,308 | 239 | 249 | 306 | 13,203 | 11,427 | 14,938 |

¹ Based on assumptions previously outlined.

it was believed that cotton could not compete successfully with other enterprises for the use of land and water on many farms.

All State reports indicated that it would pay farmers to increase yields of cotton by carrying out improved production practices to a greater extent than they have in the past. The largest increases in yields were indicated for the Southeastern and Delta States. Substantial increases were also indicated for

the irrigated areas. Only small increases were indicated for Texas and Oklahoma, mainly because practices such as fertilizer and winter legumes, so effective in other areas, are not applicable on account of relatively low rainfall in important producing areas of these States. One of the more influential factors affecting yield in the Southeast and Delta States is the application of commercial fertilizer. In these States it is estimated that it would

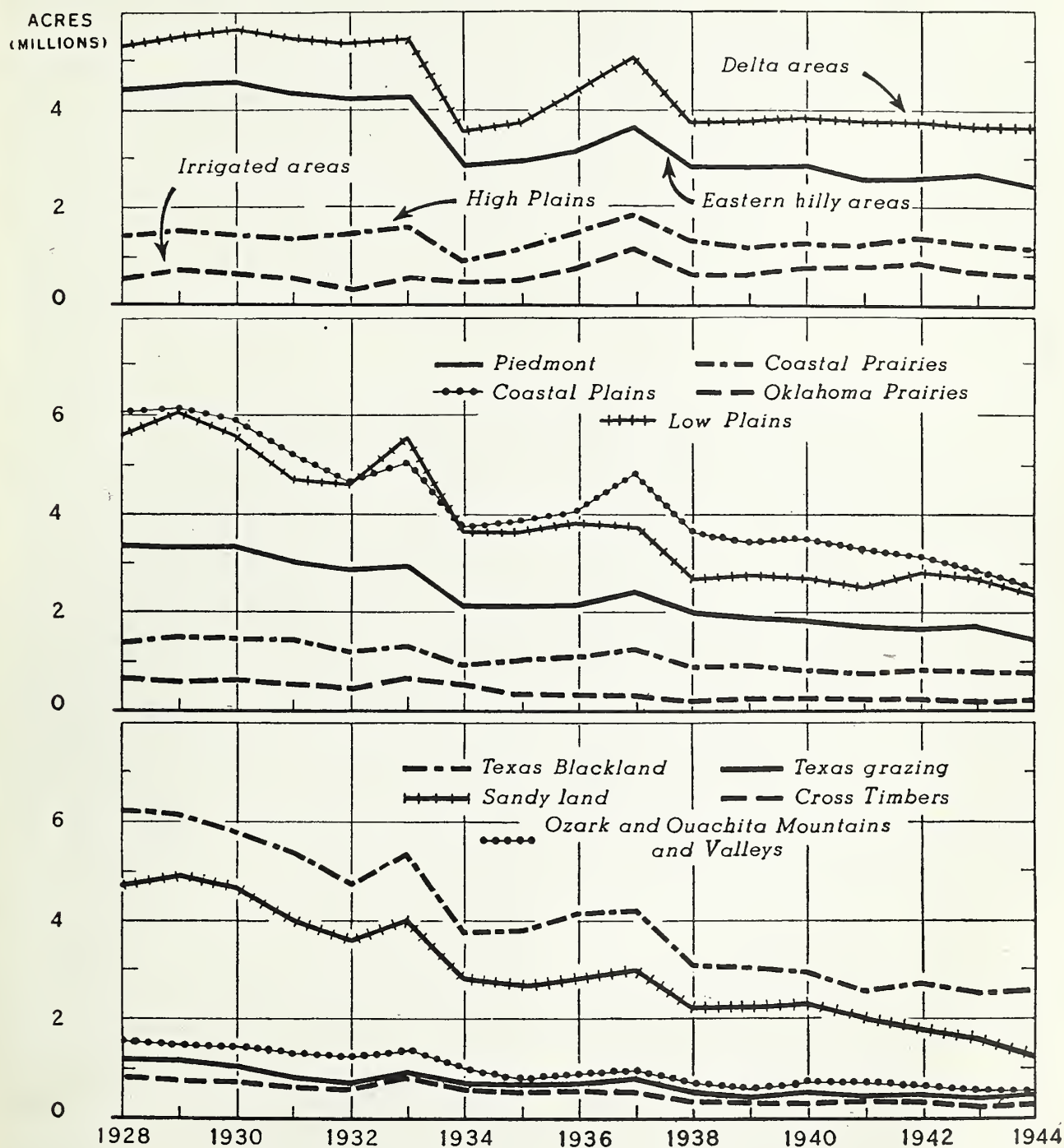


FIGURE 10.—Cotton acreage trends, by production areas, United States, 1928-44.

pay to increase the average per acre application of commercial fertilizer used in 1943 by 70 percent. This means an increase from 260 pounds to nearly 450 pounds per acre planted.

Other influential practices mentioned were the use of improved varieties of seed, insect control, land selection, winter cover crops, and seed treatment. In the subhumid areas moisture conservation and improved varieties of seed were considered the most important practices.

The nearly 15 million bales of cotton indicated as the quantity that it would pay farmers in the United States to produce, under the assumed conditions, is almost 1.5 million bales greater than the 13.5 million bales estimated as the quantity that would find a market outlet at 13 cents per pound. As both of these quantities are considered only approximations, and as yields are based on estimates of what it would pay farmers to do, rather than on a forecast of what yields are likely to be, the difference between these two figures may not be particularly important. It is significant, however, that the profitable-production estimate is the higher quantity. This indicates that, even with 13-cent cotton, production is likely to press heavily on market outlets. The analysis fur-

ther indicates that if farmers adopted efficient farming practices and planted the acreage considered desirable in each area, cotton at that price would be more profitable than alternative enterprises at relatively favorable prices on 22 to 24 million acres of cropland.

HEMP

Aside from a small prewar acreage in Wisconsin and Kentucky, the growing of hemp in the United States was developed as a wartime industry to meet the war needs for fiber in view of the stoppage of imports of hard fiber from areas occupied by the enemy. The industry has had Government support in the form of a guaranteed price to growers, development of special machinery, and construction and operation of processing plants. Assuming that this support will be discontinued as soon as the emergency is ended, State Committees in only two States believe that even a small acreage of hemp can compete successfully with other crops in the postwar period. The suggested total acreage in these States is 22,000 acres compared with a total of 225,000 acres in seven States in 1943.

POTATOES, SWEETPOTATOES, AND TRUCK CROPS

Potatoes, sweetpotatoes, and other vegetables form a group of crops that require a relatively large amount of labor per acre. In most areas successful production also requires large inputs of fertilizer and other supplies. The result is a large output per acre. In the period of wartime labor stringency, favorable support prices and other incentives have been needed to maintain the desired acreages of these crops. But a relatively small percentage of the total cropland acreage is required to supply even the wartime needs for these products; and after the war, when more labor and production supplies become available, a continuation of wartime prices would result in large increases of vegetable crops. Fortunately, consumption of some vegetables is likely to increase materially under conditions of national prosperity; but it seems probable that downward acreage adjustments will be needed in potatoes and in some other vegetable crops if the suggested bench-mark increases in yield per acre are attained.

POTATOES

Increased wartime demands for potatoes, stimulated in part by a vastly increased dehydration program for overseas shipment, resulted in an increase in acreage from an average of 2.9 million acres planted in the 1937-41 period to 3.4 million acres in 1943. Wartime acreage expansion was greatest in the specialized commercial producing areas. In the North Central region, where 42 percent of the United States potato acreage was grown in 1937-41 and much of it on general farms, acreage increased only

1 percent by 1943. In all other States the acreage increase averaged 24 percent in the same period.

Under the favorable prices assumed for the benchmark estimates, State Committees indicated that it would pay to plant 3.45 million acres—almost exactly the same as the 1943 acreage but 19 percent above the 1937-41 average. In some areas, such as the Mountain States, the Mississippi Delta States, and the Southern Plains States, some recession from the 1943 level was indicated, but these decreases were offset by increases in other areas. Prospective acreage of potatoes for 1945 is indicated at much below the 1943 level, and at about the 1937-41 average. Adjustments from 1945 to the benchmark pattern would involve a reversal of the wartime trend toward concentration of production in specialized producing areas, with especially sharp increases in the Lake States and the Corn Belt States. Acreage adjustments are summarized by groups of States in table 18.

In the two major late surplus States of Maine and Idaho where much of the production is on specialized farms, the benchmark acreage is much below both 1943 and prospective 1945 plantings, although it is above the 1937-41 average. These two States had about 13 percent of the acreage in the 30 late-potato-producing States in 1937-41, but produced almost 25 percent of the late-potato crop. In 1943 they had almost 17 percent of the acreage and produced 41 percent of the late-potato crop. Prospective plantings in 1945 indicate that they will have almost 19 percent of the United States late-potato acreage. This increased concentration of potato pro-

duction in these specialized producing States has meant most effective utilization of production resources for wartime production, but the present acreage is too large for sustained production. A return to a normal rotation and conservation farming methods in the postwar period would necessitate a reduction in acreage of 22 percent from 1943 in Maine and Idaho, but the favorable prices assumed would probably maintain the acreage about 12 percent above the 1937-41 average.

TABLE 18.—*Potatoes: Planted acreage, United States and by groups of States, 1937-41 average, 1943, and postwar bench mark*

| Groups of States | 1937-41 | 1943 | Bench mark | Percentage bench mark is of— | |
|--------------------|----------------|----------------|----------------|---------------------------------|---------|
| | | | | Average 1937-41 | 1943 |
| | 1,000 acres | 1,000 acres | 1,000 acres | Percent | Percent |
| Northeast | 648 | 753 | 802 | 124 | 107 |
| Lake States | 656 | 671 | 710 | 108 | 106 |
| Corn Belt | 290 | 278 | 319 | 110 | 115 |
| Appalachian | 302 | 367 | 341 | 113 | 93 |
| Southeast | 129 | 155 | 160 | 124 | 103 |
| Mississippi Delta | 104 | 158 | 133 | 128 | 84 |
| Southern Plains.. | 83 | 125 | 93 | 112 | 74 |
| Northern Plains.. | 283 | 360 | 348 | 123 | 97 |
| Mountain States.. | 272 | 365 | 306 | 113 | 84 |
| Pacific States ... | 146 | 209 | 240 | 164 | 115 |
| United States.. | 2,913 | 3,441 | 3,452 | 118 | 100 |

National average potato yields were 124 bushels per acre planted, in the 1937-41 period. Bench-mark yields of 152 bushels per planted acre were suggested as profitable—an increase of 22 percent. Yields in 1943 were 135 bushels per acre, but the increase of 11 bushels above the 1937-41 average was partly because a larger percentage than normal of the United States acreage was grown in the high-yielding specialized areas of the Northeastern and Western States and partly because yields in those areas were above normal. Yields in the Midwest and Southern States in 1943 were close to the 1937-41 average. In general, possibilities for yield increases are relatively greatest in the States where potato production is less specialized and where acreage per farm is small. For instance, yield increases of 25 percent are indicated for the Corn Belt and Appalachian States, but only 12 percent for Maine and Idaho.

The major practices recommended for increasing yields were greater application of fertilizer, more widespread use of certified seed potatoes, improved rotations, better control of diseases and pests, and heavier seeding rates.

Production increases would be greatest in the early-potato States, where an increase of almost 95 percent above 1937-41 is indicated. About half of the increase in these States would be in California where production of early potatoes has been expanding rapidly. Production in the intermediate-

potato States would increase 26 percent, and in the late-potato States by 39 percent.

If the bench-mark yields and acreages were to materialize, the postwar potato crop would be 524 million bushels. This is the estimated quantity it would pay farmers to produce at the assumed average United States price of \$1.20 per bushel. Even without any increase in average 1937-41 yields, about 445 million bushels would be produced on the estimated acreage. Under prosperity conditions it seems unlikely that more than 350 million bushels could be sold at that price. Even this rate would mean per capita supplies of 140 pounds compared with 127 pounds consumed per capita in 1937-41. The limited market outlet would call for downward adjustments both in production and in prices. At lower prices a moderate increase in consumption would be anticipated. It seems probable that in those States and areas where yields are low, and average acreages per farm are small, production would not expand to bench-mark levels.

SWEETPOTATOES

The postwar acreage of sweetpotatoes that State Committees suggest as profitable, at an assumed price of \$1.30 per bushel, is 36 percent above the average for 1937-41; and suggested yields are 31 percent higher. Increases in acreage and yield would result in a production 77 percent above the average for 1937-41.

In the 1937-41 period five-sixths of the sweetpotatoes were grown in the Appalachian, the Southeast, and the Mississippi-Delta States. Production was divided about equally in these areas. In the Southeastern States the suggested production is 146 percent above the average for 1937-41. Such a production would be almost double that suggested for any other area. This would be accomplished by a 55-percent expansion in acreage and a 58-percent increase in yield over the average for 1937-41. Corresponding suggested increases in production above the prewar average were 66 percent in the Mississippi-Delta States and 43 percent in the Appalachian States. In other regions suggested expansions were smaller—approximately 32 percent in the Southern Plains States based upon an increase in acreage with yield unchanged, 46 percent in the Corn Belt based largely upon increased yield, and 23 percent in the Northeastern States based upon increases in both yield and acreage.

Only 1.3 percent of the farms reporting sweetpotatoes in the 1939 census grew 5 acres or more. Almost two-thirds of the entire crop is grown in small patches and is not sold off the farm. This part of the crop is not directly affected by the price at which the commercial crop is sold. Suggestions for postwar expansion under favorable conditions apply primarily to the production of sweetpotatoes for sale. Total bench-mark production is estimated to be 77 percent above 1937-41 and 51 percent above 1943. From a crop of this size about three times as many sweetpotatoes would be available for sale as in 1937-41 and about twice as many as in 1943. It is

not probable that so large an output can be sold for food purposes. During the past 35 years the per capita consumption of sweetpotatoes has declined from 29 to 21 pounds. Any considerable expansion in the consumption of sweetpotatoes seems unlikely in the immediate postwar years. High consumer incomes probably will have only limited effect on the demand for sweetpotatoes.

The use of sweetpotatoes for feed is receiving increasing attention. Even at prewar yields, they will produce more feed units per acre than corn on many farms in the Southeastern States. High-yielding jumbo varieties of sweetpotatoes give promise of yields much larger than those obtained by varieties selected to produce high-grade table stock. But convenient, low-cost processing facilities, that make possible their storage for feed will have to be developed. To compete successfully with corn as a feed for livestock, production costs per bushel will also have to be reduced sharply by mechanization of production and increased yields.

TRUCK CROPS

For Fresh Market.—Acreages of commercial truck crops for fresh market in 1942 and 1943 were

below the 1937-41 average of 1.7 million acres, but in 1944 the largest acreage on record was harvested, nearly 1.9 million acres. State Committees suggested more than 1.9 million acres for harvest under the postwar bench-mark assumptions (fig. 11). This acreage is 12 percent above the 1937-41 average and 24 percent above the relatively low acreage in 1943. This would mean a continuation of the long-time upward trend in acreage that was temporarily reversed the first few years of participation in World War II.

The Southern region had 44 percent of the United States acreage in 1943 and produced 28 percent of the total United States tonnage, but the Mountain and Pacific regions together produced 43 percent of the tonnage from only 32 percent of the total acreage. Most of the production in the West is in California. Postwar adjustment suggestions include an expansion of 15 percent above the 1937-41 acreage in the South; but only a 3-percent increase in the Pacific States and a 23-percent increase in the Mountain States. Expansion in the Northeast and North Central regions is indicated at 10 percent and 16 percent respectively.

Yield increases are possible for all vegetable crops.

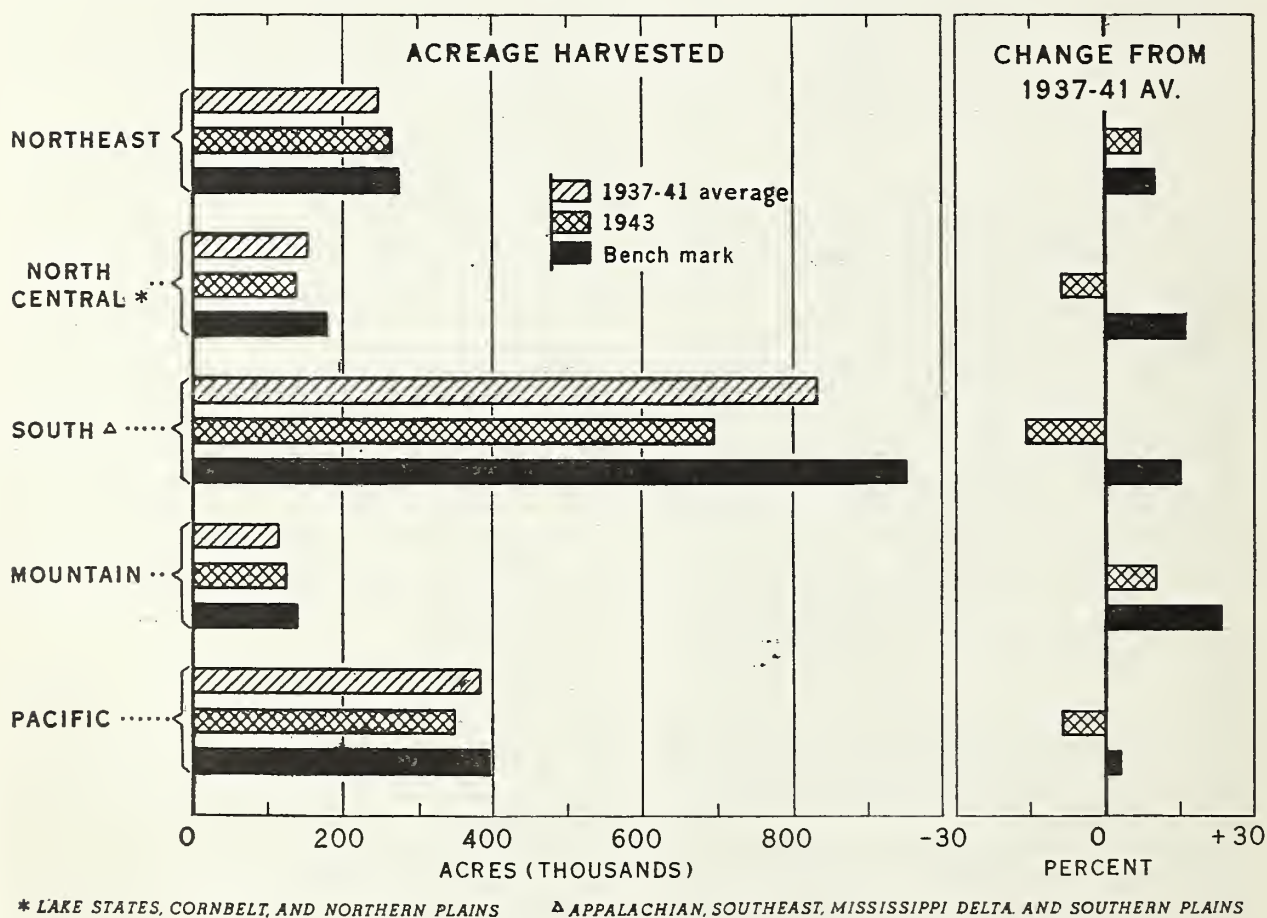


FIGURE 11.—Commercial truck crops for fresh market: Acreage harvested, by groups of States; postwar bench mark with comparisons.

State Committees estimated that it would pay growers to increase yields under the price assumptions used, at amounts varying from a 7-percent increase for onions to 57 percent for watermelons, with an average increase for 8 vegetables of 20 percent (table 19).

Assuming that yield increases are attained for all fresh vegetables comparable to those for the 8 included in table 19, production of about 8.9 million tons would result from the more than 1.9 million

acres of fresh commercial vegetables (table 20). Such a volume is 35 percent above the 1937-41 average production and above the quantity that might be expected to find a market at the assumed prices. With average 1937-41 yields only 7.4 million tons would be produced—which would be less than the estimated market demand.

The demand for vegetables is highly elastic. If prices to consumers can be kept relatively low the quantity taken off the market will be much greater than at higher prices and at the same time would improve the national diet. Increases in marketing efficiency and reduced margins are possible and desirable, because they mean lower retail prices, which in turn encourage increased volume of sales, and a higher percentage of the retail price going to the grower. Cost reductions by both growers and distributors will be influential in determining the volume that can be marketed in the postwar years.

The increased yields indicated should mean lower unit costs and a larger output per farm. Consumption of the 8.9 million tons resulting from increased acreage and higher yields is easily possible if retail prices are relatively low and consumer incomes are high.

For Processing.—In contrast to the reduction of acreage of fresh market vegetables during the first 3 war years, the acreage of vegetables for processing increased sharply in 1941 and 1942, and was maintained in 1943 and 1944 at about the 1942 level, or about 40 percent above the 1,485,000 acres planted in 1937-41. Heavy wartime demands for processed foods for the military and lend-lease, coupled with favorable prices to growers, provided the basis for the wartime expansion. Maintenance of demand in the postwar period at wartime levels is problematical, but there is good reason to anticipate an expanding outlet for frozen vegetables, which may tend to compensate for any decline in other types of processing.

Under the assumed conditions for the bench-mark period State Committees estimated that acreage of processing vegetables would be maintained near 2 million acres, only 3 percent below the 1943 level, but 38 percent above the 1937-41 acreage. Wartime expansion occurred rather uniformly in all regions, although it was greatest on a percentage basis in the South (fig. 12). The bench-mark acreage in the Southern region and in the Pacific States is considerably less than the 1943 acreage, but is 40 percent above 1937-41. In the North Central region, which has the largest acreage of any region, the 1943 and bench-mark acreages are the same; but in the Northeast and Mountain regions a continued increase in acreage is anticipated under the assumed conditions.

Yield increases that it would pay farmers to obtain were estimated at 23 percent by State Committees for the four important processing vegetables (table 19). Snap beans, corn, and peas show increases in yield for the bench-mark period about 18 percent above the 1937-41 average. A yield increase

TABLE 19.—*Commercial vegetables: Bench-mark yields as a percentage of 1937-41 average yields for selected fresh market and processing vegetables, and percentages of total United States production included in the States where yield estimates were prepared*

| Item | Percentage of 1943 production included ¹ | Percentage bench-mark yield is of 1937-41 |
|------------------------|---|---|
| | Percent | Percent |
| Fresh market: | | |
| Snap beans | 67 | 117 |
| Cabbage | 74 | 111 |
| Cantaloupes | 26 | 111 |
| Carrots | 65 | 119 |
| Lettuce | 86 | 120 |
| Onions | 41 | 107 |
| Tomatoes | 54 | 115 |
| Watermelons | 45 | 157 |
| All ² | | 120 |
| Processing: | | |
| Snap beans | 33 | 119 |
| Corn | 76 | 117 |
| Peas | 74 | 117 |
| Tomatoes | 87 | 134 |
| All ² | | 123 |

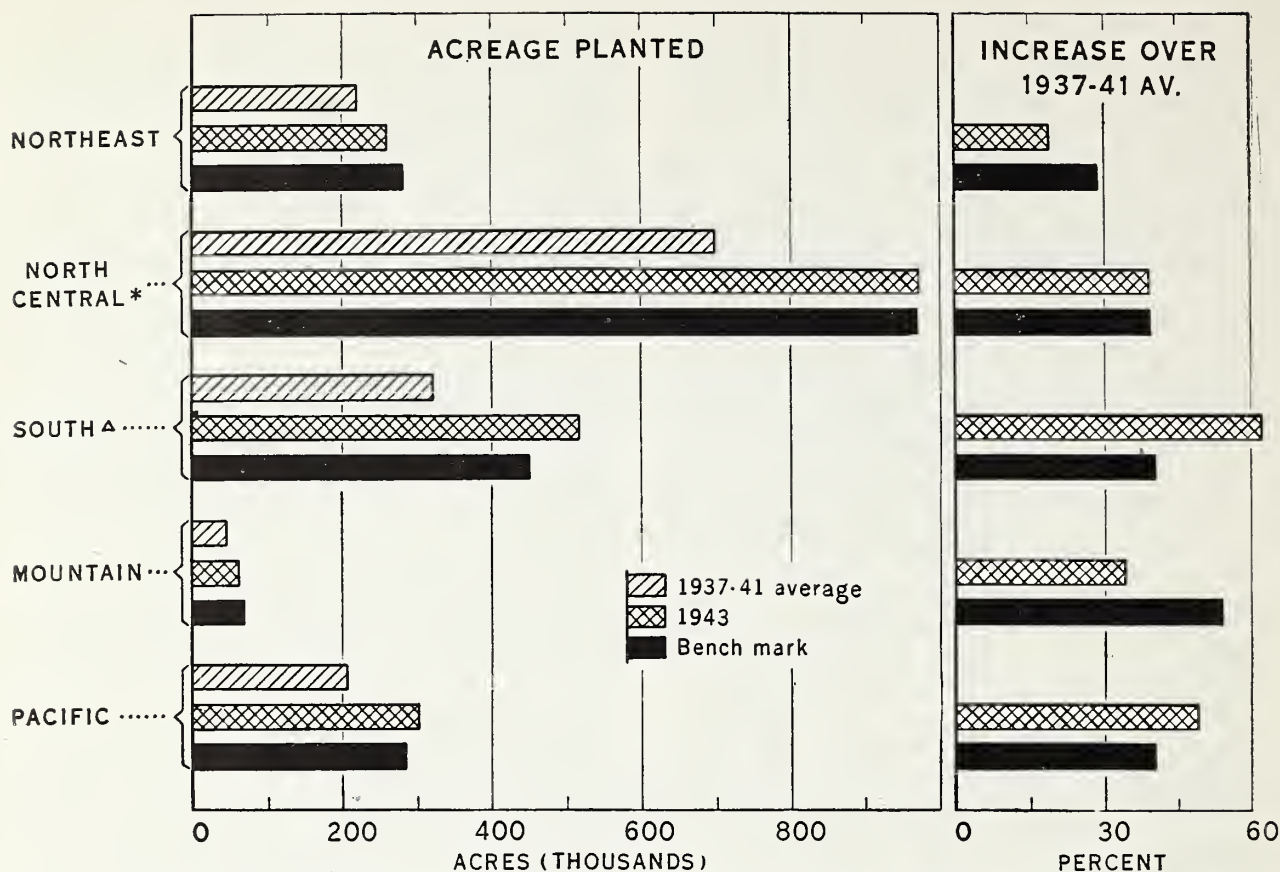
¹ Percentage of 1943 United States production included in the States for which yield estimates were made.

² Weighted average on basis of 1943 acreages of the specified vegetable crops.

TABLE 20.—*Commercial vegetables: Acreage and production, United States 1937-41 average, 1943, and postwar bench mark*

| Item | Fresh market vegetables (25 crops) | | Processing vegetables (11 crops) | |
|--|--|---------------|--|---------------|
| | Acreage harvested | Production | Acreage planted | Production |
| | 1,000 acres | 1,000 tons | 1,000 acres | 1,000 tons |
| 1937-41 average .. | 1,730 | 6,618 | 1,485 | 3,984 |
| 1943 | 1,574 | 6,508 | 2,110 | 4,981 |
| Postwar bench mark: | | | | |
| With 1937-41 yields | 1,942 | 7,438 | 2,035 | 5,754 |
| With increased yields ¹ | 1,942 | 8,925 | 2,035 | 7,077 |

¹ 20-percent increase in yields for fresh market and 23 percent for processing vegetables. See table 12.



* LAKE STATES, CORNBELT, AND NORTHERN PLAINS

Δ APPALACHIAN, SOUTHEAST, MISSISSIPPI DELTA, AND SOUTHERN PLAINS

BAE 45274

FIGURE 12.—Commercial truck crops for processing: Acreage planted, by groups of States; postwar bench mark with comparisons.

of 34 percent was indicated for tomatoes. Better cultural practices, increased use of fertilizer, improved rotations, better seed, and more effective disease and pest control are some of the major practices that can bring about higher yields.

With average 1937-41 yields and the bench-mark acreage of nearly 2.1 million acres, a total production of about 5.7 million tons of processing vegetables would be produced. This is about the quantity that estimates indicate might be consumed at the prices used in this study. If increased yields of 23 percent were attained on the suggested acreage, however, production would be greater than the potential market outlet at the assumed prices. Downward adjustments from wartime acreage levels, or increased consumption through lower prices, are indicated. Perhaps a greater shift from processing

vegetables to fresh market vegetables is desirable than that indicated in this preliminary analysis. Such a shift might be particularly applicable in the South and in the Pacific States—the major regions of fresh market vegetable production.

The postwar market outlets for commercial vegetables—both for fresh market and for processing—is closely associated with the changes that might occur in production from market gardens and from home gardens. For example, city-and-town home-garden production provided roughly 16 percent of the civilian fresh vegetable supply in the war year 1943. If home-garden production drops back to prewar levels, additional outlets would become available for the production from nearby market gardens and for both fresh and processed commercial vegetables.

SUGAR CROPS

Domestic sugar production in the postwar period could increase considerably above war and prewar levels under prosperity conditions. Significant in-

creases in yields of both sugar beets and sugarcane are possible; also moderate increases in acreage.

SUGAR BEETS

The acreage suggested for sugar beets in the bench-mark period under prosperity conditions is 986,000 acres. This would be 8 percent above the average acreage planted in the years 1937-41, and would be an 11-percent increase above the average planted acreage during the 1930's.

From the peak year 1942 the sugar-beet acreage dropped to 616,000 acres in 1943, made a moderate recovery in 1944 and again in 1945. The difficulty of securing adequate labor for thinning, blocking, and harvesting was the primary cause for the drop in acreage. In addition, there was considerable competition from dry edible beans, potatoes and other crops for which wartime requirements were high and prices relatively favorable.

The suggested postwar distribution of acreage under prosperity conditions would differ from 1937-41 in that the Mountain States would have 48 percent of the total acreage as compared with 44 percent during those years. In this group of States the acreage would be 19 percent above the 1937-41 period. The Lake States, with most of the acreage in Michigan, would have a postwar acreage slightly less than during 1937-41, and acreage in the Corn Belt would be 24 percent less. Acreage in the Northern Plains, primarily in Nebraska, would be about the same, and acreage in the Pacific States, primarily in California, would increase in proportion to the total acreage increase in the United States.

Nearly all of the sugar-beet acreage, except that in the Corn Belt and Lake States, is irrigated. Some expected increase in total land irrigated in Western States in the postwar period accounts for the part of the suggested increase in sugar-beet acreage above the 1937-41 level. Also it is believed that further advances in mechanization and seed segmentation will be made, and that labor costs will be reduced. Under postwar prosperity conditions, 79 percent of the sugar-beet acreage would be grown on irrigated land, as compared with about 75 percent during the years 1937-41.

The production of sugar beets indicated as profitable from the postwar acreage under favorable conditions is 13.7 million tons, 11 percent more than the record production of 1940, and 27 percent greater than the average production for the period 1937-41. A large part of the increase in production above prewar years would result from increases in yields per acre. State Committees indicated that if farmers adopt improved practices to the extent that it would pay, with the price of sugar beets at \$8.75 a ton, the yields would increase in the postwar period to 13.9 tons per acre, or 18 percent above the average for the years 1937-41.

All major sugar-beet States indicated that yields could be increased after the war. Greater use of fertilizer and improvements in rotation would be responsible for most of the increases. Yields in the irrigated areas are normally higher than in the Corn Belt and Lake States; and during the period 1937-41, 82 percent of the total production came from the irrigated areas. If the estimated changes in acreage

and yields should materialize, 85 percent of all sugar beets would be produced from the irrigated areas in the postwar period.

SUGARCANE FOR SUGAR AND SEED

State Committees estimated that, under the assumed prosperity conditions, it would pay farmers to produce about 7.9 million tons of cane for sugar and seed. This is about 22 percent more than was produced in 1943, and about 34 percent more than the annual production in the 1937-41 period. A very large part of the increase in production above 1943 would come from increased yields. The Louisiana Committee indicated that, under the assumed conditions, the yields could be increased profitably by nearly 20 percent compared with 1937-41 averages. This would be accomplished by increased use of fertilizer, by better rotations, and by controlling borers with cryolite.

Use of mechanical harvesters for both sugar beets and cane has increased as fast as the machines have become available, and widespread use is expected after the war.

TOTAL SUGAR PRODUCTION

The total continental United States production of sugar estimated as profitable under postwar prosperity conditions is approximately 2.6 million short tons, raw value (about 2 million of beet sugar and 600,000 of cane sugar). This is 22 percent larger than the average production for the period 1937-41. Most of the increase would come from sugar beets.

In the prewar period, sugar production from cane and beets in the continental United States normally provided about 30 percent of the national sugar supply. The balance was shipped in from Puerto Rico, Hawaii, Cuba, the Philippines, and other areas outside the continental United States. Under the Sugar Act, sugar marketings have been controlled and Government payments have been made to sugar-beet and sugarcane growers as a supplement to the price received per ton of beets and cane. If the suggested postwar production were achieved, it would mean that a higher percentage of the sugar consumed in this country would be produced on the continent.

Postwar production programs for sugar will need to be geared with our foreign-trade policy. The suggested increases in production would create a need for a slight increase in processing facilities for beet sugar in some areas. During war years, the production of sugarcane has been determined largely by the existing mill capacity. To process the crop of a size that the Committees suggest could be produced profitably, under prosperity conditions, would require additional mills, or considerably more machinery in existing mills.

TOBACCO

Under conditions of prosperity in the postwar period, it is estimated that the broad acreage adjustments in agriculture should provide for a some-

what larger acreage of tobacco. For a balanced use of land, State Committees suggested that farmers include about 1.8 million acres for tobacco, an increase of 26 percent over 1943. Adoption of improved production practices to the point of highest profit for the conditions assumed should greatly increase per acre yields. The estimates indicate that an increase from 966 pounds in 1943 to 1,125 pounds by about 1950 would be profitable if better practices are generally adopted. Such an increase in acreage and in yield per acre would result in a total production of about two billion pounds, or a level 47 percent above the 1.4 billion pounds produced in 1943.

Such an expansion would not be desirable for all classes of tobacco. Instead, most of the increase would be from flue-cured and light air-cured tobaccos—cigarette tobaccos (table 21). This seems well justified from the trends as they existed before the war, and from prospects for consumption of tobacco after reconversion to peace has been effected.

In the postwar period, flue-cured tobacco should continue to hold its commanding position. Under the assumptions used, about 1.1 million acres is suggested, or 34 percent above the 1943 level. The greatest actual increase in acreage would come in the older producing area. However, the largest relative acreage increases should occur in the newer producing areas of the States farther south.

Prospects for light air-cured tobacco suggest considerable expansion in acreage in the postwar period although not so great as for flue-cured tobacco (table 21). The greatest actual acreage increase is estimated for Kentucky where a gain of 54,000 acres above the 1943 figure of 278,000 acres is suggested. The greatest relative increases of importance are suggested for North Carolina and Tennessee.

Other domestic tobaccos, mainly the dark and

cigar types, should be reduced somewhat in the postwar period for the best use of land resources. It was suggested that the acreage be maintained at about 86 percent of the 1943 level. In 1937–41 dark tobaccos comprised about 62 percent of the acreage of "Other domestic tobaccos," but in the postwar period suggested adjustments place them at 46 percent of this group, accounting for most of the acreage decrease suggested.

Prospects for increased production of tobacco through higher yields per acre appear to be very favorable. Much can be done through further extension of improved production practices that would be profitable under the assumed price and cost relationships for the postwar period. Some practices, already in use, should be intensified. For example, in most areas fertilization is one of the most important yield-increasing practices.

Considering the acreages and yields per acre suggested for the different classes of tobacco, it appears that a very sharp increase in total production in the postwar period is possible. In this adjustment the increased production would be made up of a 58 percent gain over 1943 for flue-cured and a 49 percent gain for light air-cured tobaccos, with the total quantity of other tobaccos remaining nearly the same.

The average annual production of flue-cured tobacco in the 1937–41 period was 7.4 percent above 1943, but 22.3 percent below that of 1944. Acreage and yield suggested for the postwar bench mark would result in a production 58 percent above the 1943 crop and 15 percent greater than the high level reached in 1944.

Before the war, the average annual production of light air-cured tobacco was only slightly below the 1943 production and was very much less than the crop produced in 1944. The bench-mark production resulting from larger acreage and much higher

TABLE 21.—*Tobacco acreage, yield, and production suggested for the postwar bench mark, with comparisons*

| Type | ACREAGE | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------------------|----------------|----------------|
| | Average 1937–41 | 1943 ¹ | 1944 ² | Postwar bench mark | Percent postwar bench mark is of— | | |
| | | | | | Average 1937–41 | 1943 | 1944 |
| | <i>Thousand acres</i> | <i>Thousand acres</i> | <i>Thousand acres</i> | <i>Thousand acres</i> | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> |
| Flue-cured | 925 | 845 | 1,014 | 1,129 | 122 | 134 | 111 |
| Light air-cured | 434 | 427 | 540 | 550 | 127 | 129 | 102 |
| Other domestic | 255 | 180 | 192 | 155 | 61 | 86 | 81 |
| All tobacco | 1,614 | 1,452 | 1,746 | 1,834 | 114 | 126 | 105 |
| YIELD PER ACRE | | | | | | | |
| | <i>Pounds</i> | <i>Pounds</i> | <i>Pounds</i> | <i>Pounds</i> | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> |
| Flue-cured | 916 | 933 | 1,074 | 1,106 | 121 | 119 | 103 |
| Light air-cured | 922 | 963 | 1,155 | 1,115 | 121 | 116 | 97 |
| Other domestic | 1,039 | 1,128 | 1,229 | 1,303 | 125 | 115 | 105 |
| All tobacco | 937 | 966 | 1,117 | 1,125 | 120 | 116 | 101 |
| PRODUCTION | | | | | | | |
| | <i>Million pounds</i> | <i>Million pounds</i> | <i>Million pounds</i> | <i>Million pounds</i> | <i>Percent</i> | <i>Percent</i> | <i>Percent</i> |
| Flue-cured | 847 | 789 | 1,090 | 1,249 | 147 | 158 | 115 |
| Light air-cured | 400 | 411 | 624 | 613 | 153 | 149 | 98 |
| Other domestic | 265 | 203 | 236 | 202 | 76 | 99 | 86 |
| All tobacco | 1,512 | 1,403 | 1,950 | 2,064 | 137 | 147 | 106 |

¹ December 1944 Crop Report.

² July 1945 Crop Report.

yields would reach a level 53 percent above that of 1937-41, and 49 percent over 1943.

Production trends of other domestic tobaccos have been downward for many years. The 1937-41 level of production was 30.5 percent above the 1943 production and 12.3 percent higher than that of 1944. Continued downward trend of acreage would be largely offset by the higher yields suggested. This would result in a total production 1 percent below the 1943 level, and 14 percent under 1944.

FOOD GRAINS, BEANS, AND PEAS

In the earlier war years both ample feed supplies and limited shipping space were conducive to emphasis on animal products in the war food program. But as the food situation tightened it became necessary to place more stress on cereals and on the vegetable sources of protein. When military and relief needs for food are at an end the emphasis should shift back to livestock products—in the interest of conservation of soil resources, and to achieve a better balance of production with market outlets.

WHEAT

The suggested postwar bench-mark acreage of wheat is 62.7 million planted acres, or about 6.5

million acres less than the 1937-41 average planted acreage. Wheat is one of the few major commodities of which there was a plentiful supply during the war. No great effort to expand wheat acreage to high levels was necessary. Large accumulated stocks at the beginning of the war combined with a high level of wheat production, partly as a result of favorable weather conditions since 1941, have made it possible to meet wartime demands for wheat without expanding the acreage at the expense of other commodities, or making much inroad on fertility through abandonment of conservation practices. However, with the removal of acreage restrictions and establishment of higher wheat-acreage goals to obtain full production for feed and industrial uses as well as for food, the acreage seeded to wheat climbed from the very low level of 52.2 million acres in 1942 to 65.7 million acres in 1944, and to 68.8 million acres in 1945.

Downward adjustments from the 1945 level in planted acreage amounting to about 6 million acres would be necessary in the transition period to reach the suggested postwar bench-mark acreage. Most of the adjustment would be made in the northern Great Plains and Pacific States although important relative shifts would occur in other areas. To develop a desirable land use pattern, and soil-conserving, yield-sustaining systems of farming in these

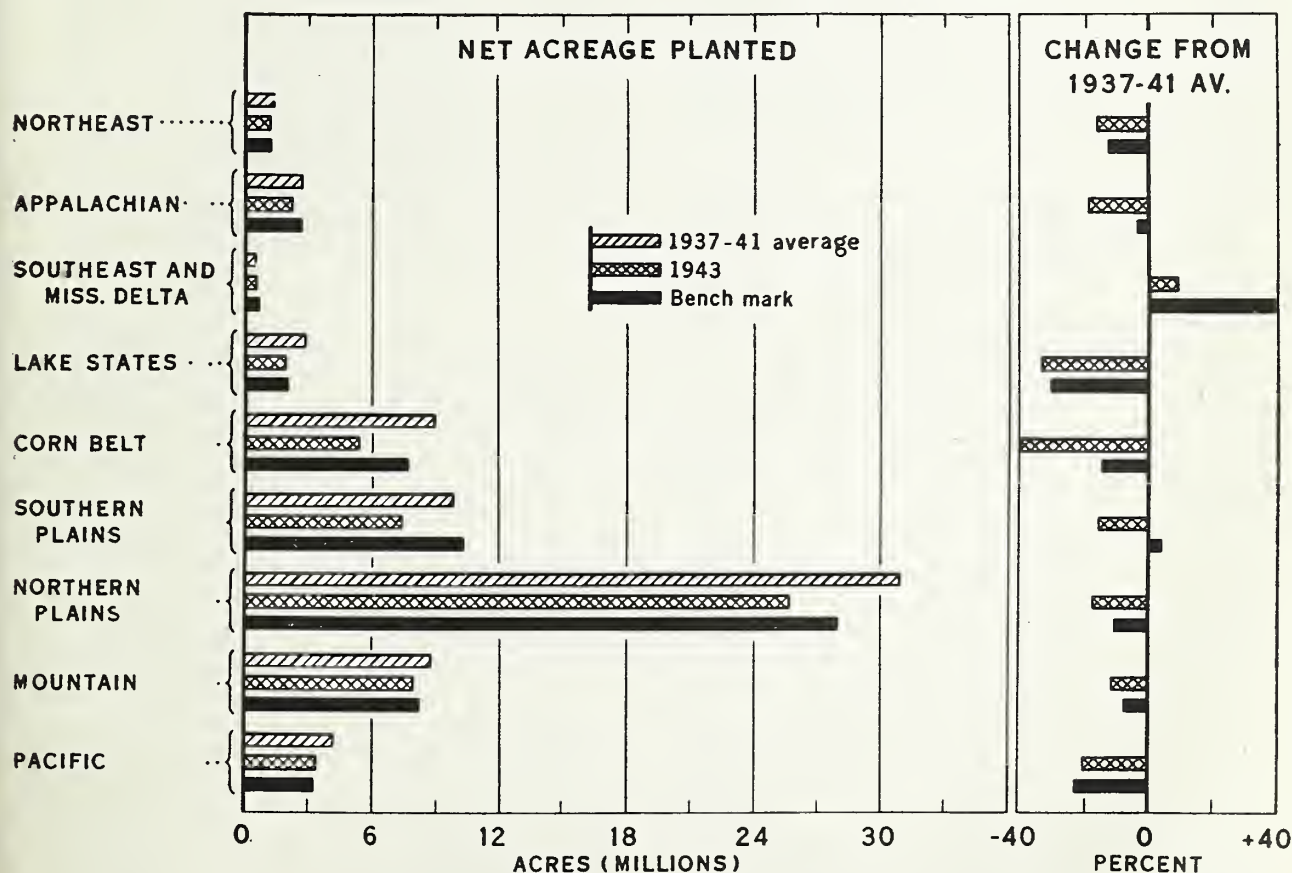


FIGURE 13.—Wheat: Net planted acreage, by groups of States; postwar bench mark, with comparisons.

States under the assumed conditions would mean: (1) An increase in summer-fallow acreage, particularly in the northern Plains, (2) a fairly large acreage reseeded to grass in the submarginal or badly eroding wheat areas in both the northern Plains and Pacific States, and (3) a greater use of legumes and grasses in rotation with wheat in the Pacific States.

These major shifts in land uses would be primarily responsible for the indicated reductions in wheat acreage for the postwar period. They represent approximately a 10-percent reduction below 1945 indicated levels of wheat acreage in the northern Plains, and about 25 percent in the Pacific States. Combined, the adjustments for the two groups of States account for about 70 percent of the total adjustment indicated for the United States. Only in the Corn Belt and Southeast would the acreage planted to wheat be expected to increase above present indicated levels. The Corn Belt acreage has been at exceptionally low levels during the war years. The Southeast, with a very small acreage, has been increasing wheat production for several years, for consumption within these States. In all other groups of States the adjustment would be moderately downward.

Regional distribution of wheat acreage in the bench-mark period would differ somewhat from the 1937-41 pattern (fig. 13). The Southern Plains States would have a higher percentage of the total wheat acreage at the bench-mark level than in the 1937-41 period. The percentage of total United States wheat acreage would be slightly less under the postwar pattern in the northern Plains, Pacific, Corn Belt, and Lake States than during the earlier period.

Under bench-mark conditions, production of wheat would be 913 million bushels, about 50 million bushels more than the average 1937-41 level of production. The improvement in yields that could be expected from shifts in acreage and adoption of improved practices would result in more production even with a considerably smaller acreage.

The national average postwar yield per seeded acre is estimated at 14.6 bushels per acre, 2.2 bushels per acre more than the average for 1937-41—an increase of about 18 percent. This increase in yield would be achieved by (1) retirement of low-producing wheatlands in the Mountain, Pacific, and Northern Plains States; (2) increased erosion-control practices, such as straight and contour strip cropping, primarily in the Northern and Southern Plains and Mountain States; (3) increased use of moisture-conserving practices, such as more summer fallowing, largely in the Northern Plains and eastern part of the Mountain States; (4) greater use of fertilizer, especially in the Corn Belt, Lake States, Eastern, and Southern States; (5) improved rotations where wheat can be profitably rotated with other crops; and (6) more widespread use of improved varieties. In almost all States some increase in yields of wheat was believed possible if certain improved practices were adopted, although there were considerable differences between States in estimating the

extent to which adoption of better practices would increase yields.

RYE

Acreage of rye for grain decreased during the war period largely because of competition with other crops more urgently needed, and, until 1945, the unfavorable price of rye. Rye acreage harvested for grain was about 2.3 million acres in 1944 as compared with 3.7 million acres for the years 1937-41. The suggested postwar bench-mark acreage is about 2.4 million acres, only very slightly above the low wartime acreage.

Wartime reductions in acreage have been greatest in the major producing areas—the Northern Plains and Lake States. And under postwar prosperity conditions competition from other commodities would tend to keep the acreage in these States at a low level. Possibilities for yield increases are not so great for rye as for many competing crops. The harvested acre yield for the United States might be increased from the average of 12.4 bushels per acre for the 1937-41 period to 13.4 during the bench-mark period. Greatest yield increases are possible in the Lake States and in the Northeast and Southeast. Greater use of fertilizer and improved rotations would be largely responsible for these yield increases. With the higher yields, 31.6 million bushels of rye would be produced in the postwar period, 31 percent less than the 1937-41 average.

Land used for rye for grain is only a part of the total land planted to rye. Before the war, about 60 percent of the total acreage planted to rye was harvested for grain. During the war years, the total plantings have been reduced, and also only about 50 percent has been harvested for grain. Some States have increased total plantings during the war years for use as pasture and as a winter cover crop.

RICE

The acreage and production of rice greatly increased during the war years in response to favorable prices and urgent war needs. With the exception of a small new area in Arkansas, the expansion occurred in and around the fringes of old established areas in Louisiana, Texas, Arkansas, and California. Furthermore, much of the increase in acreage was brought about by growing rice more frequently in the rotation than was done before the war. In some areas the irrigation resources were not adequate to handle the increased acreage efficiently. These tended to lower yields—a necessary wartime change, but not desirable from the long-time point of view.

Reports of State Committees indicate that with an assumed price of 85 cents per bushel it would pay farmers to produce 64 million bushels of rice in the postwar period. This is nearly 21 percent greater than the average of the 1937-41 period, but is smaller than the production of 1943. This production would result from 1.2 million planted acres, which is about 7 percent above the 1937-41 acreage, and a yield of 53.6 bushels per acre, which is 13 per-

cent above the 1937-41 average. The suggested acreage is nearly 21 percent smaller than 1943, but the yield per acre is 20 percent higher.

The indicated adjustments are in the same direction for each of the States that produce rice. When rotations are lengthened again, and when some of the lower yielding land is taken out of production, yields are expected to increase over 1943 in all four States. Compared with 1937-41 it was indicated that some increase in yields might be profitably obtained in Arkansas and Louisiana by increasing the use of fertilizer and by using new varieties. The quantity of rice, 64 million bushels, indicated as profitable for farmers to produce at a price of 85 cents per bushel, under the assumed conditions, is 16 million bushels more than the estimated consumption at that price. This indicates that supplies likely would press heavily on market outlets.

Considerable progress has been made in mechanizing rice production by the use of the combine harvester and the artificial drier in areas not formerly mechanized. A study made by the Texas Agricultural Experiment Station indicates that, with 1943 prices of labor, materials, and supplies, the cost of producing rice could be reduced about \$4.50 per acre by using combines and driers as compared with the use of binders and stationary threshers. Where not already used, widespread adoption of these machines will improve the competitive advantage of rice in relation to other crops for the use of land and water.

DRY EDIBLE BEANS

As a result of wartime price increases, supported prices, and purchase programs, and appeals to growers for increased production, the acreage of dry edible beans planted in 1943 was about 2.7 million

acres—a 35-percent increase over the 1937-41 average of nearly 2 million acres. Most of the expansion occurred in the western dry-land and irrigated areas. Eastern producing areas (almost entirely in New York and Michigan) increased the acreage only 9 percent, whereas acreage was increased by 51 percent in areas west of the Mississippi River.

State Committees suggested that dry edible beans be planted on 1.9 million acres in the postwar period under the conditions assumed. This would mean 2 percent less than the 1937-41 acreage. An increase from the 1937-41 average of about 3 percent was suggested for the eastern areas, and a decrease of about 5 percent for the western areas. Reduction from the peak 1943 acreage to that suggested for postwar was accomplished in 1945 with 1.8 million acres indicated in July for harvest.

The major bean-producing States can be grouped into three areas: (1) Eastern humid areas, (2) dry-land farming areas in the West where moisture conservation is important, and (3) irrigated areas. About one-third of the total acreage is grown under each of these conditions (table 22). The suggested changes for the postwar years would increase the relative importance of the eastern areas to about 40 percent of the total acreage. Each of the two western groups of States would have about 30 percent of the acreage.

The most significant differences between the three major producing areas are in the yields obtained (table 22). The western dry-land States had 32 percent of the bean acreage in 1937-41, but produced only 14 percent of the beans. Others of the western States had only 30 percent of the acreage but produced nearly 50 percent of the beans, while the eastern areas produced 37 percent of the national crop from 38 percent of the acreage.

TABLE 22.—*Dry edible beans: Acreage, yields, and production, United States and major producing areas, 1937-41, 1943, and bench-mark levels*

| Groups of States | ACREAGE | | | Percentage of United States | | |
|--|----------------------------|----------------------------|----------------------------|-----------------------------|---------|-----------------------|
| | Average 1937-41 | 1943 | Postwar bench mark | Average 1937-41 | 1943 | Postwar bench mark |
| | Thousand acres | Thousand acres | Thousand acres | Percent | Percent | Percent |
| United States | 1,977 | 2,673 | 1,935 | 100 | 100 | 100 |
| Eastern (largely in New York and Michigan) .. | 745 | 813 | 770 | 37.7 | 30.4 | 39.8 |
| Western dry-land States ¹ | 631 | 930 | 586 | 31.9 | 34.8 | 30.3 |
| Other Western States (largely irrigated land) ² | 601 | 930 | 579 | 30.4 | 34.8 | 29.9 |
| | YIELD PER ACRE | | | | | |
| | Pounds | Pounds | Pounds | Percent | Percent | Percent |
| | | | | | | |
| United States | 829 | 783 | 940 | 100 | 100 | 100 |
| Eastern (largely in New York and Michigan) .. | 817 | 789 | 945 | 98.6 | 100.8 | 100.5 |
| Western dry-land States ¹ | 374 | 401 | 511 | 45.1 | 51.2 | 54.4 |
| Other Western States (largely irrigated land) ² | 1,323 | 1,159 | 1,366 | 159.6 | 148.0 | 145.3 |
| | PRODUCTION | | | | | |
| | 1,000 bags ³ | 1,000 bags ³ | 1,000 bags ³ | Percent | Percent | Percent |
| | | | | | | |
| United States | 16,395 | 20,922 | 18,184 | 100 | 100 | 100 |
| Eastern (largely in New York and Michigan) .. | 6,084 | 6,414 | 7,280 | 37.1 | 30.7 | 40.0 |
| Western dry-land States ¹ | 2,360 | 3,733 | 2,992 | 14.4 | 17.8 | 16.5 |
| Other Western States (largely irrigated land) ² | 7,951 | 10,775 | 7,912 | 48.5 | 51.5 | 43.5 |

¹ Includes Arizona, Colorado, Kansas, New Mexico, and Texas. In these States most of the beans are grown on dry land without irrigation, although about one-third of Colorado is irrigated.

² Other western States also produce some beans without irrigation, but most of the acreage is irrigated. In California, about one-third of the acreage is not irrigated.

³ 100-pound bags.

Yields of beans during the war years were below prewar yields—partly because acreage expanded into less well adapted areas, and partly because beans in some areas were grown on the same land more continuously than before the war. Confinement of bean production to the well-adapted areas in the postwar period will mean higher average yields. But, in addition, the yields can be increased by better practices. Use of better varieties, increased application and better placement of fertilizer, more careful cultivation, and better control of the Mexican bean beetle, were practices mentioned by State Committees in the eastern producing States that can increase yields about 15 percent above 1937–41 yields.

An increase in yields of 37 percent was considered practicable for the western dry-land States. Concentration of bean growing on the better adapted lands and better methods of conserving moisture account for part of this. But the major factor is the possibility of increasing yields of irrigated beans in Colorado by about 60 percent through increased use of fertilizer and better rotations.

Only a moderate increase of 3 percent over 1937–41 average yields was indicated for the other Western States. Application of more fertilizer and better rotations can increase yields significantly in the irrigated areas. The average yield increases were held down because of greater reductions in acreage of high-yielding irrigated beans than in the lower-yielding dry-land beans, particularly in California.

If the acreages and yields suggested by State Committees should materialize, slightly more than 18 million bags of dry beans could be produced. This compares with an average of 16.4 million bags in 1937–41 and 20.9 million in 1943. Eastern areas would produce 40 percent instead of 37 percent in prewar years, western dry-land States 16.5 percent, compared with 14.4 percent in prewar years; and other Western States only 43.5 percent, compared with 48.5 percent in 1937–41. Production of 18 million bags might result in some serious marketing problems with normal peacetime outlets.

DRY FIELD PEAS

The acreage of dry field peas expanded sharply during the war years—from an average of 280 thousand acres in the 1937–41 period to 832 thousand acres in 1943. This is a threefold increase. Most of the increased acreage during the war years was for direct edible use rather than for seed for green-pea production or for livestock feed.

In prewar years about 70 percent of the dry pea acreage in the United States was planted in Washington and Idaho. This increased to 78 percent in 1943. Montana, Oregon, and Colorado are the other

States where dry field peas are of considerable importance.

The rapid expansion in acreage during the war years is attributable to the relatively high support prices established to encourage expansion; to the fact that peas in the major producing areas replace summer fallow in the alternate wheat-fallow rotation without displacing another crop, and with only moderate effects on reducing wheat yields; and to a series of better-than-normal growing seasons which resulted in good yields. High yields plus high prices made this crop very attractive to farmers.

Production in wartime has expanded into some areas that are not well adapted to peas under normal conditions. In some of the better adapted areas, particularly in the Palouse area of eastern Washington and northern Idaho, peas were grown on the same land in successive years on some farms, or the land was continuously cropped with wheat and peas, with the result that weed infestation has become a serious problem. Soil-erosion losses have been accelerated with this system of farming.

There is no foreseeable food demand in the postwar period for anywhere near the high production of recent years. The prospective sharp reduction in commercial demand, together with the need for more soil-conserving systems of farming in the main pea-producing areas, indicates the need for a postwar reduction to about 400 thousand acres, even under prosperity conditions. This is less than one-half the acreage in 1943, but 46 percent above the 1937–41 average. Large increases in feeding dry peas to livestock are possible, but only with peas on a competitive price with other concentrate feeds. At the feed-price levels used in this report this would mean pea prices roughly half the 1945 support price of \$4.25 to \$4.50 per hundredweight.

Yields of dry peas have been high in the major producing areas during the war years because of a combination of favorable conditions of temperature and moisture. Smaller yields are expected with more normal weather conditions, but significant increases can be made above average yields. Improved rotations and the application of gypsum can increase yields materially in the Palouse area. Concentration of a reduced acreage in the better adapted areas will mean higher average yields. The bench-mark yields indicated as possible are 1,345 pounds per acre compared with 1,306 pounds in 1943 and 897 pounds in 1937–41.

Production of dry peas in 1943 was more than 10 million 100-pound bags compared with 2.5 million bags in the 1937–41 period. With the suggested acreage and yields for the postwar bench mark, production could be 5.5 million bags from 409 thousand acres. But with the average yields that prevailed in the 1937–41 period, only 3.7 million bags would be produced.

FEED GRAINS AND FORAGE CROPS

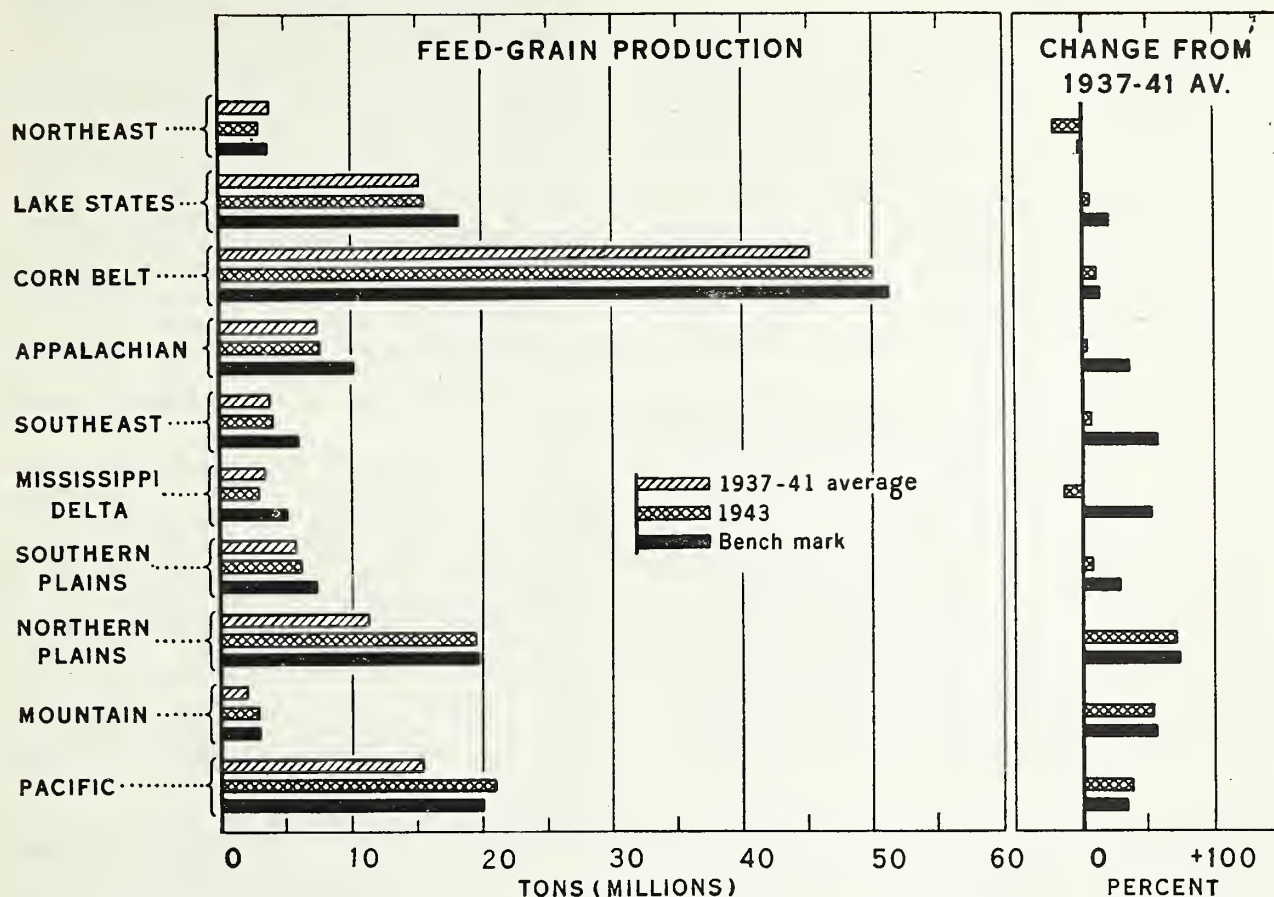


FIGURE 14.—Feed-grain production, by groups of States; postwar bench mark with comparisons.

Now that the war is over and longer-time productions plans can be made, many farmers in the principal feed-producing areas should and will return to cropping systems which include more grasses or legumes and less corn and soybeans. They also should adopt and expand the use of proved production practices that will increase yields per acre or lower costs of production—or do both. These adjustments will be needed to obtain the optimum of maintenance or improvement of resources, efficiency in operation, and farm income.

If approximately full and unrestricted exchange of goods among all groups in our economy is achieved in the postwar period (as assumed in these bench-mark estimates), it will pay farmers to make many adjustments in the directions indicated above. One result of such adjustments would be a higher level of both feed grain and forage production than ever before attained. The possibilities for increasing the production of hay and pasture would be outstanding because both total acreage and yield per acre would be increased.

FEED GRAINS

The postwar bench-mark estimates developed by State Committees for feed grains total in round

numbers, 150 million harvested acres and to 127 million tons of feed grains—corn, oats, barley, and sorghums. The acreage would be 3 percent more than the average for the period 1937–41, but 4.4 percent less than the wartime acreage in 1943. Production would be 27.5 percent more than the average production from 1937 through 1941, and 14.5 percent more than was produced in 1943 (fig. 14). The explanation of considerably larger production on approximately the same total acreage is the possibility of obtaining higher yields per acre under favorable conditions. The suggested postwar acreage of corn—the highest yielding of the four crops—is a smaller proportion of the bench-mark total for the four crops than was represented by corn in 1943. Some of the reasons for the suggested changes in acreages and for the advancement in “normal” expectancy in acre yields are discussed in the following sections on individual feed grains.

Corn.—As the war period lengthened, farmers in increasing numbers were expressing concern about the intensive use of their land in intertilled crops. Many, particularly among those in the Central Corn Belt State, recognize that they should grow fewer acres of corn and more of sod crops in the postwar

period in order to rebuild and maintain the productivity of their cropland.

Because corn is one of the major soil-depleting crops, the State Committees in the five Central Corn Belt States are of the opinion that even at the assumed price of 90 cents a bushel, farmers in those States should plan to grow about 17 percent fewer acres of corn after reconversion is completed. In the States that border the Corn Belt on the south and the north, the acreage of corn would be less than in 1943—about 10 percent on the average—for the same reason. In most of the southern States, further shifting from corn to oats, which, in that region, produce more feed per acre, would be profitable.

On the other hand, most of the gradual recovery from the drought setback in the acreage of corn in the Great Plains and Mountain States probably would be maintained. In the Northern States of these regions, further recovery would be desirable. In these regions as a whole, however, the full height of the pre-drought acreage of corn probably could not be maintained over a period of years. For the United States as a whole, a postwar acreage of corn about the same as in 1940 (88–89 million acres planted) would permit some restoration and maintenance of the productivity of the soil in the principal corn-producing areas, and provide for desirable shifts in crop production in the noncommercial areas.

Although apparently it would be desirable to plant fewer acres of corn after the transition from wartime conditions, continuation of production at slightly higher than the wartime level would be feasible because of the opportunities in a prosperous peacetime agriculture for extending the use of improved production practices. The summary of the State Committees' estimates of these opportunities and their probable influence on the yield of corn per acre indicates that it would pay farmers to carry out practices that could be expected to raise the United States average yield to 36.7 bushels per planted acre. This yield would be 8.6 bushels more than the 1937–41 average, and 5.3 bushels more than was obtained in 1943. Thus, about 88.5 million acres yielding 36.7 bushels per acre would produce about 3.25 billion bushels of corn annually. A crop of that size would be just a little more than the all-time record crop of 1944.

In addition to better rotations, to which a reduction in the acreage of corn would contribute, it would pay more corn growers to use more fertilizer, more green manures, barnyard manures, and crop residues; proper water disposal and moisture-conserving practices; and special practices to control insects and diseases. Hybrid seed is now used for almost 100 percent of the corn produced in the central part of the Corn Belt, but the development and use of varieties of hybrids better suited to other areas will considerably improve yields in those areas. Furthermore, adequate supplies of improved machinery and experienced labor in peacetime would facilitate

better cultural practices and make it possible to concentrate more of the work on corn in the periods when it would be most effective.

Oats.—The oat crop of the United States ranks second to the corn crop in importance among the four principal feed grains. It ranks closer in acreage, however, than it does in tonnage of feed produced, or in value of the crop. Oats, however, usually are not considered a cash crop. They are grown largely for feed, and to complete the rotation system as a transitional crop between corn and wheat, or corn and sod crops. Oats are used more frequently as a nurse crop for grass, clover, and alfalfa than some of the other small grains. They rank high as feed for horses, dairy cows, breeding stock, and young animals because of their balanced nutritive content.

The larger acreages of sod crops that are essential to a stabilized cropping system would require a larger acreage of oats in some of the Corn Belt States, to serve as a nurse crop for new seedings of hay and pasture crops. Corn and soybeans tended to crowd out oats during the war, and some of the acreage taken out of those crops after the war would be used for growing more oats. This would be encouraged by the recent development of new higher yielding varieties of oats. The suggested postwar acreage for the five central Corn Belt States is 5 percent more than in 1943 and 6 percent more than in 1937–41.

A considerable increase in production of feed grains is desirable in the South and the Appalachian States. Oats have been producing slightly more feed per acre than corn in these States since rust-resistant and higher-yielding varieties have been available. And the opportunities for further improvement in the yield per acre appear to be more promising for oats than for corn. The suggested percentage increases above 1943 in the acreage of oats for different groups of southern and eastern States are: Mississippi Delta States, 118 percent; Southeastern States, 48 percent; Appalachian States, 18 percent; and southern Plains States, 14 percent.

In most other States, suggested postwar acreages of oats are somewhat smaller than the acreages grown in 1943, but are larger than the average for 1937–41. The acreage of oats in the Great Plains and Mountain States had not fully recovered, in the 1937–41 period, from the droughts in 1934 and 1936. On the other hand, the need for feed grains during the war has caused oats to replace hay and wheat to a greater extent in those States than State Committees think would be desirable after the war.

In total, the suggested acreage of oats is about 45 million acres. This would be 2 million acres more than was planted in 1943, and 5.5 million more than the average during 1937–41.

The opportunities for increasing the yield per acre are as good or better for oats than for corn. In recent years, such new northern varieties as Tama, Boone, Vicland, and Marion, and some better winter varieties for the South have contributed to relatively

higher yields. Improvement in variety has been influential in reducing the loss caused by stem and crown rust. Oats also respond remarkably well to the application of fertilizers. If these and other improved practices were used to the fullest profitable extent, the average yield per acre in the United States probably would be increased about 20 percent above the 1937-41 average. All sections of the country would share in the increase, but the percentage increases would be greatest in the South and in the Appalachian States and smallest in the Northeast and Mountain States.

The combination of a larger acreage and a larger yield per acre would increase the production of oats to about 1.6 billion bushels, or about 37 percent above both the 5-year (1937-41) average and the 1943 production.

Barley.—After having remained about stationary for 15 years, the harvested acreage of barley increased sharply from 7.5 to 13.5 million acres during the 3 years from 1927 through 1929. This increase was fostered by relatively high prices for barley, growing out of a combination of small domestic stocks of corn and oats and increased foreign demand to meet an unusual shortage of feed grains in Europe. This high level of acreage was approximately maintained until the 1934 and 1936 droughts cut the acreage back to about the 1926 level.

During the period of expansion before the drought, many more farmers had learned that barley was a good feed and that, in many areas, it produced more feed per acre than corn or oats. Consequently, when acreage allotments were placed on wheat and corn, the acreage of barley recovered and went to new heights between 1936 and 1942. The all-time record of 19.5 million acres planted and 16.8 million acres harvested was reached in 1942.

Since 1942 there has been a steady decline, partly because of generally unfavorable weather at seeding time, and partly because of the removal of restrictions on the planting of wheat and corn. The State Committees believe that some of the recent loss in acreage should be restored in postwar cropping systems. The suggested 15.3 million acres would be 7 percent more than the 1937-41 average acreage planted, but 12 percent less than that planted in 1943.

The northern Plains and Mountain States, the Lake States, and California are the principal areas in which barley is grown. Improved varieties of corn and oats for the Lake States and the northern Plain States will tend to crowd barley out as a feed crop, whereas barley is still a more certain crop than corn in many parts of the Mountain States. Campana, an improved barley variety, holds promise for these States. In California, new irrigation developments would make possible some shift from barley to alfalfa and intertilled crops.

Although the harvested acreage of barley in the central Corn Belt was more than 1.8 million acres in 1928, barley never has been a popular crop there unless prospective returns were clearly greater than

could be obtained from a crop more easily handled and less subject to disease.

The opportunities for increasing the yield per acre by the use of improved practices do not appear to be significant in most of the principal producing areas. Hence the estimated bench-mark yield for the United States is 23.8 bushels which is only 2 percent above the 1937-41 average. Significant increases above the 1937-41 average could be profitably obtained in the humid areas, but in the drier areas it does not seem likely that yields higher than the 1937-41 average would be maintained over a period of years.

With no important change in acreage of barley, or in yield per acre, the total bench-mark production of 311 million bushels would be about 9 percent above the 1937-41 average, but 4 percent below that of 1943.

Sorghums for grain.—In comparison with other feed grains, the sorghums harvested for grain are a minor crop in the United States. But they are of outstanding importance among the feed grains in the southern part of the Great Plains region that includes portions of Kansas, Oklahoma, Texas, and New Mexico. In this area they take the place occupied by corn in the more humid sections of the country and they provide much of the feed grain and roughage for farm and range livestock.

Between 1919 and 1939 the acreage of sorghums harvested for grain fluctuated around 4 million acres. Because the crop is grown under very hazardous weather conditions, production during the 20-year period ranged from about 19 to 88 million bushels. Since 1939 increases in acreage and production have been rapid and fairly consistent. About 182 million bushels were harvested from 9.1 million acres in 1944. Development of new and higher yielding varieties adapted to harvesting with a combine have contributed to these increases. The shortage of other feed grains, the widening of the market and relatively high prices for sorghums in 1943 and 1944 also furnished an incentive for the very sharp increase in the proportion of the planted acreage harvested for grain. With a plentiful supply of other feed grains after the war, so large a proportion of the total acreage probably would not be harvested for grain.

State Committees suggest maintaining the planted acreage of sorghums at the 1944 level of about 18 million acres, with some reduction in the proportion of the crop harvested for grain. The suggested acreage for grain is 7.9 million acres. This would be 48 percent more than the average acreage harvested for grain from a total of about 17.1 million acres planted for all purposes in 1937-41. Most of this increase would occur in Texas.

Opportunities are pointed out for further improvement in production practices that would increase the yield of grain sorghum 14 percent above the 1937-41 average, and 6 percent above the 1943 yield. The reports indicate that the opportunities are better in the northern Plains States than in other parts of the sorghum area. The larger yield per acre

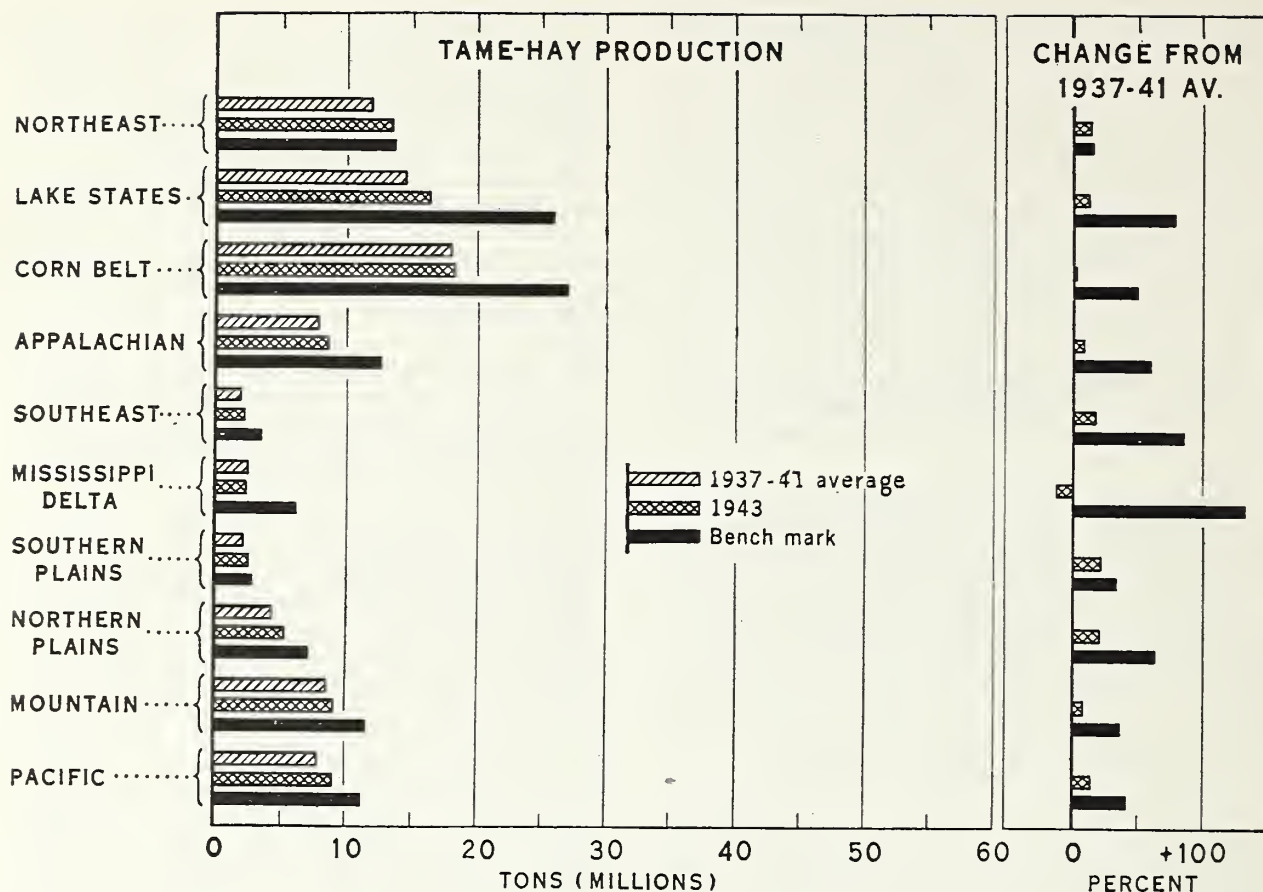


FIGURE 15.—Tame-hay production, by groups of States; postwar bench mark with comparisons.

on the larger acreage would give a production of about 131 million bushels, which would be 70 percent above 1937-41 average and 26 percent above 1943 production. But it would be about 50 million bushels less than the record production in 1944.

HAY AND PASTURE

The need for larger acreages of sod crops as a part of a program for maintaining or improving the productivity of cropland already has been mentioned. (See page 10.) An additional reason for growing more acres of high-quality hays and pastures in certain areas is that with improved production practices they will produce more feed units more economically than any alternative feed crop.

All tame hay.—The postwar bench marks developed by State Committees for all tame hay total 68.3 million acres and a production of 122 million tons. This acreage would be 19 percent more than the average for 1937-41 and 12 percent more than was harvested in 1943. The production would be 53 percent more than the average production from 1937 through 1941, and 40 percent more than was produced in 1943 (fig. 15).

In general, less attention has been given to improved practices in hay production than any other feed crop except pasture. Hence, with favorable market outlets and favorable prices for livestock products, it would be profitable to go much further in the substitution of higher yielding and higher quality legumes for lower yielding and less nutritious grass hays. It also would be profitable to use more lime and fertilizer on more acres. And improved methods of harvesting and curing would enhance the nutritive content of the hay. It is estimated that under favorable conditions these improved practices would raise the United States yield to about 1.8 tons, compared with an average of about 1.4 tons in 1937-41, or an increase of about 25 percent.

State Committees suggest an expansion in the acreage of hay in all parts of the United States except in the Northeast. Compared with 1943, the largest increases (30-50 percent) would be made in the Northern Plains, the Lake States, and in the Southern States that are largely outside of the peanut-hay area. In the peanut-hay area there would be considerable substitution of other hays for peanut hay. The increase in the Corn Belt States would be 13 percent above both 1943 and the 1937-41 average.

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Increases in yield per acre would be feasible in all major groups of States. Compared with the 1937-41 average, the opportunities appear to be greatest (about 65 percent) in the Mississippi Delta States. Regional increases in yield per acre of from 30 to 40 percent were estimated for the Lake States, the five Corn Belt States, the Appalachian States, and the Southeastern States.

Pasture.—In meeting wartime needs for larger acreages of higher yielding crops, a considerable acreage of land normally used for pasture was shifted to other more intensive uses. This occurred especially in the Corn Belt, the Lake States, and the Northern Plains.

From the standpoint of a long-time cropping program that will maintain or improve the soil and produce feed economically, pasture should occupy a more important place in those areas than it did during the war. State Committees in both the Corn Belt and the northern Plains States suggest that the acreages of rotation pasture be increased 25 percent above the 1943 acreage. The suggested increase in the Lake States is 16 percent.

In the Appalachian and Southern States larger than usual acreages of better quality pastures are needed as the basis for a conversion to more diversified farming, including more livestock production. The increases in acreage of approximately 25 percent in these groups of States would be mostly in permanent pasture, even though the percentage increase in rotation and permanent pasture would be about the same.

A suggested increase in rotation pasture of 37 percent in the Pacific States and 17 percent in the Mountain States largely represents desirable increases in irrigated pasture.

The opportunities for improvement of the carrying capacity per acre by the use of better pasture-management practices are greater for open permanent pasture than for rotation pastures, measured in terms of animal-unit months of grazing. In the States east of the Great Plains, the estimated benchmark carrying capacity for an average acre of open permanent pasture is 31 percent above 1943; whereas for rotation pasture it is 16 percent above 1943. All of the over-all gains in carrying capacity of rotation pastures would be confined to the central Corn Belt, the Lake States, and the Mississippi Delta States. In all other groups of eastern States, any improvement in carrying capacity of that type of pasture would be slightly more than offset by the addition of more acres of lower potential carrying capacity. In both the Corn Belt and the Lake States, State Committees estimate that by the use of profitable improved practices farmers can increase the carrying capacity of the average acre of rotation pasture to 25 percent above its capacity with the pasture-management practices in use in 1943 and normal growing weather.

In the same two groups of States—Central Corn Belt and Lake States—comparable increases in the carrying capacity of an average acre of open permanent pasture are 37 percent and 65 percent, respectively, above 1943. A comparable figure for the Appalachian States is 23 percent; for the Mississippi Delta States, 18 percent; and for the Northeastern States, 15 percent.

A valid comparison between 1943 and a postwar bench mark in the carrying capacity per acre of pastures and ranges in the Great Plains States and States farther west cannot be made from the available data.

III. COMMODITY ADJUSTMENTS—LIVESTOCK PRODUCTION

In the development of the postwar bench marks for feed crops as summarized in the preceding section, State Committees assumed a demand for large quantities of livestock products at favorable prices if full employment and a high level of national income are maintained after the war. The large demand for livestock products would create a need for large quantities of feed. Thus, they estimated that it would pay farmers to produce 11.5 percent more tons of feed grains (corn, oats, barley, and sorghums for grain), 34 percent more tons of tame and wild hay, and 16 percent more animal-unit months of pasturage than was produced in 1943. These larger supplies of grains and forage would be used chiefly to produce 9 percent more livestock and poultry products for food than was produced in 1943, and nearly 50 percent more than the average production in 1935-39. Both numbers of animals and production per animal would increase. *Here, as with crop production, there are no forecasts of what future production will be. The postwar bench marks are State Production Adjustment Committees' first estimates of what it would pay farmers to do under assumed prosperity conditions.*

In developing the bench-mark estimates for production of livestock and poultry, the State Committees (working independently) balanced probable supplies of concentrates and forage available for feeding livestock against feed requirements for the suggested livestock production. Those States which normally ship feed grains or hay to feed-deficit States made somewhat more than ample allowances for continuation of this practice. The suggested forage-improvement programs and substitution of forage for grains in the feeding rations would lessen the need for shipments of feed grains into the feed-deficit States. The estimated total supplies of feed grains and hay available for feeding livestock and poultry were 5 percent and 3 percent more, respectively, than the estimated total requirements for that purpose.

The balance between estimated carrying capacity of pastures and ranges and estimated requirements of livestock for pasture was reasonably close—generally with a small margin of safety—in most States, except those in the Corn Belt, where considerably more carrying capacity would be available than needed for the suggested numbers of livestock if the estimated yields per acre were obtained. The opportunities for improvement of pastures in the Corn Belt are great, and the suggested increases in the acreage of rotation pasture averaged 25 percent.

Had there been an opportunity during the progress of the study for exchange of information among

feed-surplus and feed-deficit States, the State Committees in the feed-surplus States would have made smaller allowances for outshipments of feed. An even balance between supplies of feed and livestock production could have increased total production of livestock and poultry from 3 to 5 percent.

MEAT ANIMALS

HOGS

Responses to the War Food Program for more hogs brought succeeding increases from 1941 through 1943. The pig crop increased from 80 million head in 1940 to 85 million head in 1941, to 105 million head in 1942, and to 122 million head in 1943. The average weight of hogs slaughtered increased from 231 pounds in 1940 to 247 pounds in 1943. Although increases in all classes of livestock and livestock products were called for, hog production was expanded more rapidly than most other kinds of livestock, primarily because it can be expanded more readily, but partly because the support prices for hogs were set at relatively higher levels, and were effective over a longer period of time.

This rapid expansion in hog production, together with expansion in other classes of livestock, used more feed each year than was produced that year, despite the very large crops harvested. All the reserves accumulated before the war were rapidly exhausted so farmers had to curtail breeding operations for the 1944 spring and fall pig crops to bring hog production in line with the prospective supplies of feed. The 1944 spring pig crop was 25 percent below and the fall crop was 34 percent below the respective crops in 1943.

The break in the corn-hog price ratio, and marketing and slaughtering difficulties encountered with the very large 1943 spring crop also contributed to the sharp downturn in the 1944 pig crop. They continued to influence breeding operations as late as the 1945 spring pig crop even though the record 1944 corn crop assured ample feed supplies for feeding a larger pig crop in 1945.

Allowing time for adjustments, the production of hogs and the supplies of corn are closely related. Farmers have reported intentions to farrow a larger fall pig crop in 1945 than in 1944.

Considerable recovery in the size of the pig crop in the postwar period would be feasible and profitable to farmers if reconversion is accomplished in ways that result in sustained prosperity. The assumed farm price of 90 cents a bushel for corn and

TABLE 23.—United States livestock, number and production: Postwar bench mark, with comparisons ¹

| Livestock and livestock products | Unit | 1937-41 ² | 1943 ² | Postwar bench mark ³ | Percentage postwar bench mark is of— | |
|---|----------------|----------------------|-------------------|---------------------------------|--------------------------------------|---------|
| | | | | | 1937-41 | 1943 |
| | | | | | Percent | Percent |
| On farms Jan. 1: | | | | | | |
| Horses, mules and colts..... | 1,000 head | 14,891 | 13,379 | 10,907 | 73 | 82 |
| Cattle and calves, all..... | 1,000 head | 67,407 | 79,114 | 83,980 | 125 | 106 |
| Cows kept for milk, 2 years. | 1,000 head | 24,824 | 27,106 | 30,163 | 122 | 111 |
| Other cows, 2 years..... | 1,000 head | 10,532 | 12,903 | 13,170 | 125 | 102 |
| Sheep and lambs, all..... | 1,000 head | 52,101 | 55,775 | 52,897 | 102 | 95 |
| Ewes, 1 year..... | 1,000 head | 35,444 | 37,722 | 36,094 | 102 | 96 |
| Hens and pullets..... | 1,000 head | 376,577 | 487,837 | 470,679 | 125 | 96 |
| During year: | | | | | | |
| Sows farrowed, spring..... | 1,000 head | 7,529 | 12,136 | 9,568 | 127 | 79 |
| Sows farrowed, fall..... | 1,000 head | 4,799 | 7,576 | 5,950 | 124 | 79 |
| Chickens raised | 1,000 head | 656,464 | 933,965 | 808,213 | 123 | 87 |
| Commercial broiler production | 1,000 head | 111,327 | 251,360 | 257,420 | 231 | 102 |
| Turkeys raised | 1,000 head | 30,810 | 32,970 | 39,257 | 127 | 119 |
| Milk cows, average during year | 1,000 head | 23,575 | 25,663 | 28,690 | 122 | 112 |
| Milk produced | Million pounds | 107,903 | 118,140 | 148,173 | 137 | 125 |
| Eggs produced | Million dozen | 3,252 | 4,521 | 5,026 | 155 | 111 |
| Hogs, net production ⁴ | Million pounds | 15,708 | 24,338 | 21,631 | 133 | 89 |
| Cattle and calves, net production | Million pounds | 15,038 | 18,419 | 20,338 | 136 | 111 |
| Sheep and lambs, net production | Million pounds | 2,075 | 2,136 | 2,240 | 108 | 105 |
| Wool shorn | Million pounds | 369 | 384 | 367 | 99 | 96 |

¹ These quantities are estimates of what it would pay farmers to produce under the conditions assumed. They are not estimates of what farmers would produce under those conditions. In contrast the quantities shown in Miscellaneous Publication No. 562 are estimates of quantities that consumers would purchase and that farmers would be likely to produce on the basis of past production responses.

² Bureau of Agricultural Economics unless otherwise noted.

³ Reports of State Production Adjustment Committees, December 1944. The total of net production of cattle and sheep include a few estimates made by BAE to fill omissions in State reports.

⁴ For the feeding year beginning October 1.

\$11.25 a hundredweight for hogs would give a hog-corn price ratio of 12.5 to 1. This ratio is reasonably favorable to marketing corn through hogs.

State Committees estimate that under the above assumptions it would pay farmers to produce about 3¼ billion bushels of corn on about 89 million acres by using improved practices to increase yields per acre. They further estimate that it would be profitable to raise an annual pig crop of about 102 million head. This would be 16 percent less than the pig crop in 1943, but 32 percent more than the average pig crop during the 5-year period 1937-41 (fig. 16).

A hog-corn price ratio of 12.5 to 1 would encourage giving more attention to improved production practices, such as better feeding and parasite and disease control. State Committees estimate that this would be reflected in 6 percent more pigs saved per litter and in 4 percent fewer pounds of concentrates used to produce a hundred pounds of hogs as compared with 1943.

CATTLE FOR BEEF

A high level of employment in the postwar years would mean a large demand for beef of good quality. This in turn would provide a market at satisfactory prices for the product of a large acreage of range and pasture land, and of land on which to

grow grain and hay. State Committees estimate that at the assumed average farm price for all grades of beef cattle (\$10.25 a cwt.) it would be profitable to maintain the total number of beef cattle in the United States at about the 1945 level.

Several gradual changes affecting the beef-cattle enterprise have been favorable to a general upward trend in numbers on farms and ranches. First, the composition of beef-cattle herds was changing remarkably during the last 40 years, in the direction of lowering the average age, and hence the average feed requirements per head of beef animals other than cows and bulls. Steers 1 year old or older constituted about 36 percent of the total number of beef animals on January 1, 1900, 25 percent in 1920, and about 17 percent in 1940. On corresponding dates calves constituted 22 percent, 30 percent, and 34 percent, respectively, of the total number of beef animals. Cattle raisers, especially in the Great Plains, were shifting to a cow-and-calf basis. Cattle feeders demanded animals that could be finished into young Choice grade slaughter animals, and mid-western and eastern markets for 2- and 3-year-old steers became more and more limited. Then, the carrying capacity of hay and grazing land in terms of number of cattle has been increased progressively since 1918 by the decline in the number of horses and mules. Between 1918 and 1944 the decline in the number of horses and mules released enough hay and

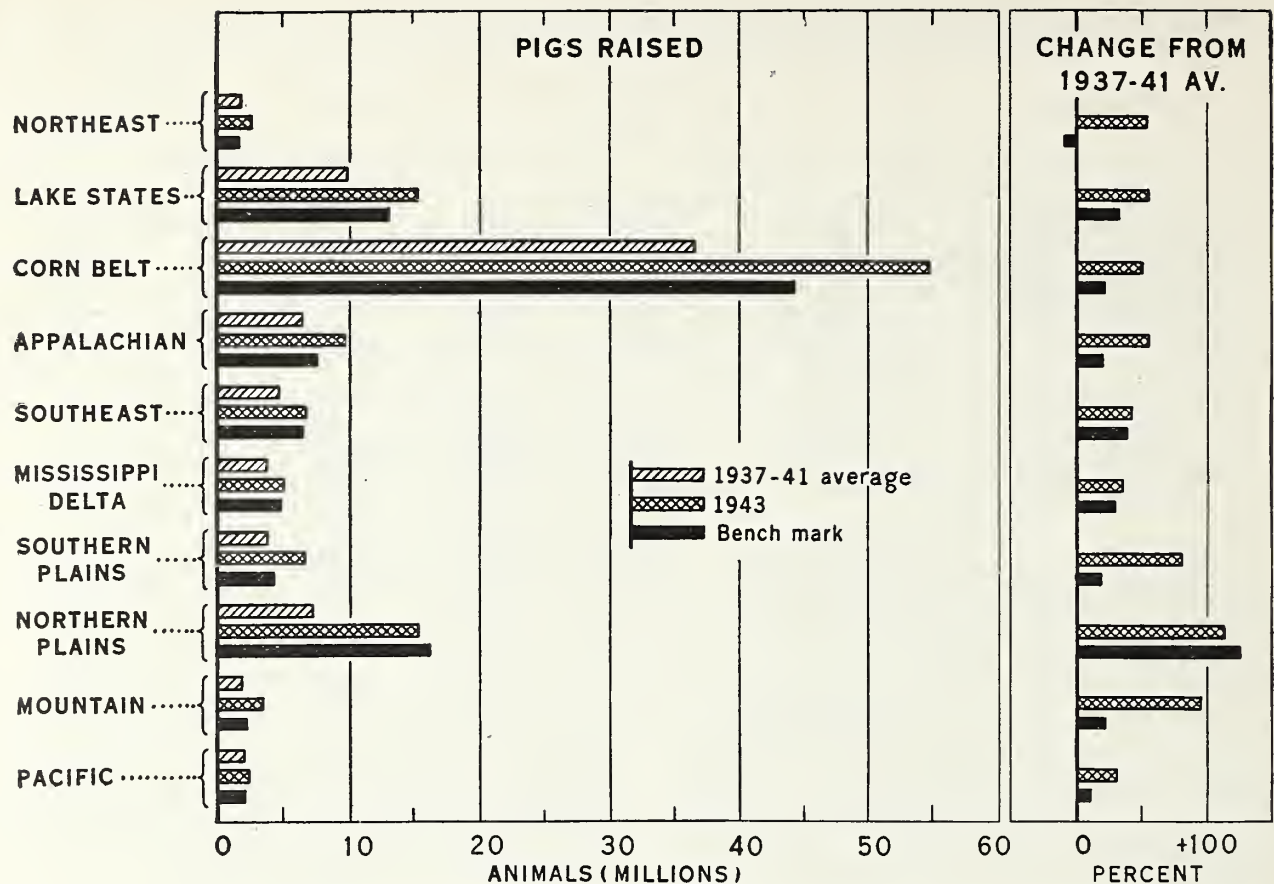


FIGURE 16.—Pigs raised, by groups of States; postwar bench mark, with comparisons.

pasture to feed the equivalent of about 16.5 million additional cattle and calves. Furthermore, the total feed units of hay and forage consumed by all livestock have been larger in recent years than at any other time since 1910. The possibilities for even larger production of hay and forage in the postwar period were discussed in another section of this report.

The number of beef cattle has increased in recent years both in the range States and in the rest of the country. The rate of increase, however, has not been the same, nor have both sections shared alike in the conditions favorable to sustained increases. During the 5-year period, 1930-34, about 66 percent of the beef cattle were in the 17 western States. A decade later, 1940-44, the proportion decreased to 60 percent. This shift is accounted for mainly by the almost steady increase since 1928 in the number of beef cattle in the central Corn Belt States. It is in these States that the most rapid gains have been made in shifting from horse to mechanical power, and from grass to legume hays and pastures, both of which have increased forage supplies for feeding cattle. The pattern of change in other regions east of the Great Plains, except the Northeast, was about the same as in the Corn Belt.

The almost steadily upward trend since 1928 in

the Corn Belt and other eastern States was arrested in 1944. It may be moderately reversed during the next few years, because pressure for meat to fill immediate postwar requirements will encourage heavy marketings. It will be good business to cull closely while there is a strong market. But as postwar adjustments in crop production are made in these States, feed will be available to support a somewhat larger number of cattle and calves than are now on farms. Adjustments in the direction of hay and pastures of better quality will be foremost in the postwar plans of Corn Belt and Cotton Belt farmers. Upward adjustments in the number of all cattle (both beef and dairy) suggested by State Committees for different parts of the eastern United States range from 6 percent above 1943 in the central Corn Belt States to 30 percent above 1943 in the southeastern Cotton Belt.

The droughts of 1934 and 1936 affected cattle raising in the Great Plains and Mountain States more seriously than it did in regions east of the Great Plains because the droughts were more severe in the West and because the eastern States always have a large supply of coarse roughages which can be drawn upon in an emergency. The cattle cycle always has been most pronounced in the range States, and the swings have been greatest in the

Northern Plains partly because milk cows are a relatively small proportion of the total number of cattle in the range area. Reports of State Committees for the range States emphasize the desirability of still closer culling of herds to bring them within safe limits from the standpoint of the supply of feed that is ordinarily available. Many ranges are overstocked for ordinary rainfall conditions; fewer cattle would produce a greater total gain in weight, except when grazing conditions are unusually good. There are now more cows and heifers in many herds than will be needed for herd maintenance. The suggested reduction in all cattle in the 17 western States is about 3 percent below the number in 1943, and 7 percent below the number in 1944, the highest year of record.

When the post-conversion stage is reached there again will be enough feed to put a high finish on steers in the feedlots. State Committees estimate that the quantity of concentrates fed per animal put on feed would be about 25 percent more than was fed in 1943. They also estimate that the number of animals put on feed would be increased about 15 percent compared with 1943 when the number on feed was at a record level. The number of cattle and calves on feed January 1, 1943 was 43 percent above the average for the period 1932-41.

Under the assumed conditions, cattle producers would find it profitable to give more attention to improved production practices. This would result in 6 percent more production per animal with 5 percent fewer pounds of concentrates per 100 pounds of gain in live weight as compared with 1943. An estimated increase in the percentage calf crop from an average of 82.4 during the 5-year period 1937-41 to 84.6 in the postwar period would be reflected in increased production per animal. And an increase in the production of high-quality forage would permit greater substitution of forage for concentrates in the beef cattle ration.

SHEEP

With the passing of the financial stringency in the early 1920's, the sheep industry in the United States moved into a new phase. Foreign competition was decreasing rather than increasing, because grain farming and cattle ranching were displacing sheep ranching in Australia and Argentina. The prices of sheep and lambs rose rapidly relative to those for other kinds of meat animals, and they remained unusually steady until the general break in 1930. Under this strong stimulus the number of stock sheep increased to a new record in 1931 in the western sheep States. The increase was also significant in the native sheep States. Centers of these increases were in Texas, the northern Plains States, Iowa, and Missouri.

This new level was held rather firmly during the depression of the early 1930's until the 1934 drought, and any decreases in the drought period were more than regained before the start of World War II.

During World War II labor problems and pros-

pects of relatively better income from cattle in many areas have affected the production of range sheep more adversely than that of any other class of livestock. The number of stock sheep in the United States decreased from 49.8 million head on January 1, 1942 to 41.3 million head on January 1, 1945. This was the smallest number since 1929.

The State Committees estimate that the assumed prices for the postwar period (sheep, \$6.90 a cwt.; lambs, \$11.45 a cwt.; wool, 40 cents a pound) would be favorable to building up of flocks of stock sheep to a total of about 45.5 million head. This would be about the same as the average number on farms and ranches in the 5-year period ending in 1941.

The geographical distribution of sheep would be somewhat different than it was in the prewar period. Larger numbers are suggested for the Great Plains, the Lake States, and the Appalachian States. In most other States smaller numbers are suggested, especially in the Pacific Coast States.

The feeding of sheep and lambs would be increased to 25 percent above the average number put on feed from 1937 through 1941. The increase above 1943 would be about 8 percent and it would occur mostly in the western States.

Sheep producers would find it profitable to give more attention to improved production practices under the prices assumed. This could result in 10 percent more production per animal with about the same number of pounds of concentrates per 100 pounds of live-weight production (compared with 1943). An estimated increase in the percentage lamb crop from an average of 84.1 percent during the period 1937-41 to 87 percent in the postwar period would be reflected in increased production per animal. It is also estimated that the average weight of fleece would increase slightly under conditions of better management.

POULTRY AND EGGS

The wartime demands for poultry and eggs, and the Government price-support programs, furnished an incentive for large increases in production from 1941 through 1944. The shortage of meats, and the fact that the production of most meats could not be increased so rapidly, furnished a special incentive for expansion of poultry flocks.

Considerable quantities of dehydrated eggs have been sent overseas for our armed forces, for lend-lease to our Allies, and for relief in liberated areas. Preliminary estimates indicate that the military and lend-lease together took 14 percent of the chickens (including broilers), 20 percent of the turkeys, and 25 percent of the eggs, produced in 1944.

Assuming that the demand for eggs would continue strong and that the average farm price would be 29 cents a dozen, State Committees suggested bench-mark egg production of 5 billion dozens. This is 4 percent above the unprecedented production of 4.8 billion dozens in 1944, and nearly 55 percent more than the average annual production in 1937-41. Estimating that it would be profitable to in-

crease the production of eggs per hen to 10.7 dozens which would be 12 percent above the rate of laying in 1944, and 24 percent more than the average for 1937-41, State Committees point out that it would pay farmers to decrease the number of hens and pullets to 471 million, or 9 percent below the number on farms January 1, 1944.

Assuming a population of 144 million people in 1950, bench-mark production of 5.0 billion dozen eggs on farms (table 23), in addition to a probable half billion dozens of nonfarm production, would mean a per capita consumption of 445 eggs annually. This figure includes an allowance for hatching needs, but assumes no imports or exports. Per capita consumption would need to be about 44 percent above prewar and almost 28 percent above the 349 eggs per capita for civilians in 1944.

Considerable variation is found in the percentage increase in egg production suggested for various groups of States. In the prewar years nearly two-thirds of the total production in the United States came from four groups of States: The Corn Belt (26 percent), the Northeast (16 percent), the Lake States (12 percent), and the Appalachian States (10 percent). These groups of States as a whole could produce about the same proportion of the larger total in the postwar period. But in the Lake States, where the bench-mark production is 89 percent higher than prewar, the proportion of the total would increase from 12 percent in the prewar years to 15 percent in the postwar period. The proportion of production in the Corn Belt and Appalachian States would be about the same as in the prewar years. Production in the Northeast, on the other hand, would be a smaller proportion of the total than it was in 1937-41.

Chickens (exclusive of commercial broilers) are ordinarily raised primarily for replacement of laying flocks, and hence somewhat incidentally for the production of poultry meat. Thus the relationship of the postwar bench mark for chickens raised to the number raised in prewar years is about the same as the relationship shown above in the number of hens and pullets kept for laying in corresponding times.

With respect to commercial broilers, State Committees estimate that the 1943 level of about 250 million birds would be maintained. Production in 1943 was 126 percent above prewar production. In 1944 production was 108 percent above 1937-41. All groups of States would continue to produce more broilers than before the war, and 1943 levels would be exceeded in the Appalachian and Southeastern States. An increase of 17 percent over 1944 is suggested in the Appalachian States, which produce 50 percent of the total, mostly in the Del-Mar-Va peninsula. With the suggested percentage increase in the Southeastern States more than 300 percent higher than prewar, both these groups of States would produce a larger proportion of the total than they did before the war. In the Northeast and in the Corn Belt the suggested bench marks are nearly twice that of prewar production, but the production

in these groups of States would be a smaller proportion of the total than it was before the war.

Assuming no exports or imports, the bench-mark production of 808 million chickens and 257 million commercial broilers would provide a per capita consumption of 23.2 pounds of chicken meat, assuming the non-farm production of 81 million chickens. This would be 27 percent greater than the prewar consumption rate of 18.2 pounds, but considerably lower than the 28.1 pounds consumed in 1943, which is the highest rate recorded.

The postwar bench-mark number of turkeys raised is 39.3 million compared with 36.3 million in 1944, and with 30.7 million in 1937-41. About 65 percent of the turkeys raised in the United States in 1937-41 were raised in fairly equally distributed numbers among four groups of States: Pacific, Northern Plains, the Southern Plains, and Corn Belt States. The southern Plains States, which ranked first in turkey production before the war in the postwar period would drop to fourth place among the groups of States mentioned.

With a production of 39.3 million turkeys, the per capita consumption of turkey meat would be 4.0 pounds. In prewar years the consumption averaged 3.1 pounds; and in 1943 and 1944 it was 3.2 and 3.3 pounds, respectively. It seems likely that the consumption level of 4 pounds per capita could easily be maintained under conditions of high consumer purchasing power.

State Committees stress the desirability of improving poultry-production practices. Emphasis was given to disease and parasite control, scientific feeding, earlier hatching, better housing, and improved breeding.

A major cause of unprofitable operations for many poultrymen has been a high rate of mortality. Tuberculosis, pullorum, and coccidiosis have been the chief causes of these losses. The purchase of stock, or eggs for hatching, from high-producing flocks free from contagious diseases is of prime importance in conducting a successful poultry enterprise. Vaccination is recommended to lower the degree of susceptibility to certain diseases.

The importance of balanced rations in the scientific feeding of flocks is pointed out, and considerable stress is given to the importance of range. Good pasture—an acre for each 300 to 400 pullets—sometimes saves 15 to 20 percent in the total cost of feeding. Frequent culling of laying flocks is advocated. Earlier hatching of chicks is suggested to improve vigor and health, and for earlier egg production.

Improved poultry houses and capacity use of houses are recommended. Emphasis is given to the proper planning of the construction and location of houses to reduce labor requirements. The use of lights in laying houses is recommended to change the time of heavy production to the season when prices for eggs are highest. Under the assumed conditions, State Committees suggest that poultrymen would find it profitable to give more attention to these improved production practices. Compared with 1943,

this would result in the production of 15 percent more eggs per hen with 3 percent fewer pounds of concentrates.

MILK PRODUCTION

Milk production on farms increased during the war years, but not at so great a rate as that of pork and eggs. The average production for 1943 and 1944, of more than 118 billion pounds, although slightly lower than in 1942, was about 10 percent above that for 1937-41. The 25.8 million cows kept for milk on farms in 1944 was 9.5 percent above the 1937-41 average. Milk production per cow for 1943-44 was 4,591 pounds, which was slightly higher than the prewar average of 4,577 pounds.

The 9.5 percent increase in the number of cows during the war has been possible because of increased yields of feed crops and pasture per acre. The shift toward a higher proportion of legume hay that began before the war was continued. An increase in the use of milking machines tended to counteract the shortage of farm laborers.

In addition to the increased demand for fluid milk and dairy products by civilians, the armed services and lend-lease took the equivalent of one-sixth of the total production of milk on farms in 1944. The full force of the greater civilian demand has been

tempered by wartime ceiling prices and by allocation and rationing programs on several of the major dairy products. An increasing proportion of the milk production has been marketed as whole milk instead of cream, thereby making available greater quantities of non-fat milk solids for human use.

Dairy-production payments made to producers on the quantities of milk and cream marketed since October 1, 1943, have offset the limiting influence of ceiling prices for milk and higher feed prices on producer returns. The gap between the production of rationed dairy products and the effective civilian demand for them began to develop in late 1942. Increased military and lend-lease needs, together with slightly lower milk production in 1943 and 1944, decreased the supplies of dairy products available to civilians. At the same time civilian purchasing power continued to expand. The wide gap between supplies available for civilians and effective civilian demand, that prevailed in 1943, was maintained in 1944.

State Committees estimate that with the assumed average farm price for milk (\$3.10 a hundredweight) it would be profitable to dairymen to produce 148.2 billion pounds of milk. This bench mark is an increase of more than 37 percent over the quantity produced in the prewar years and 25 percent more

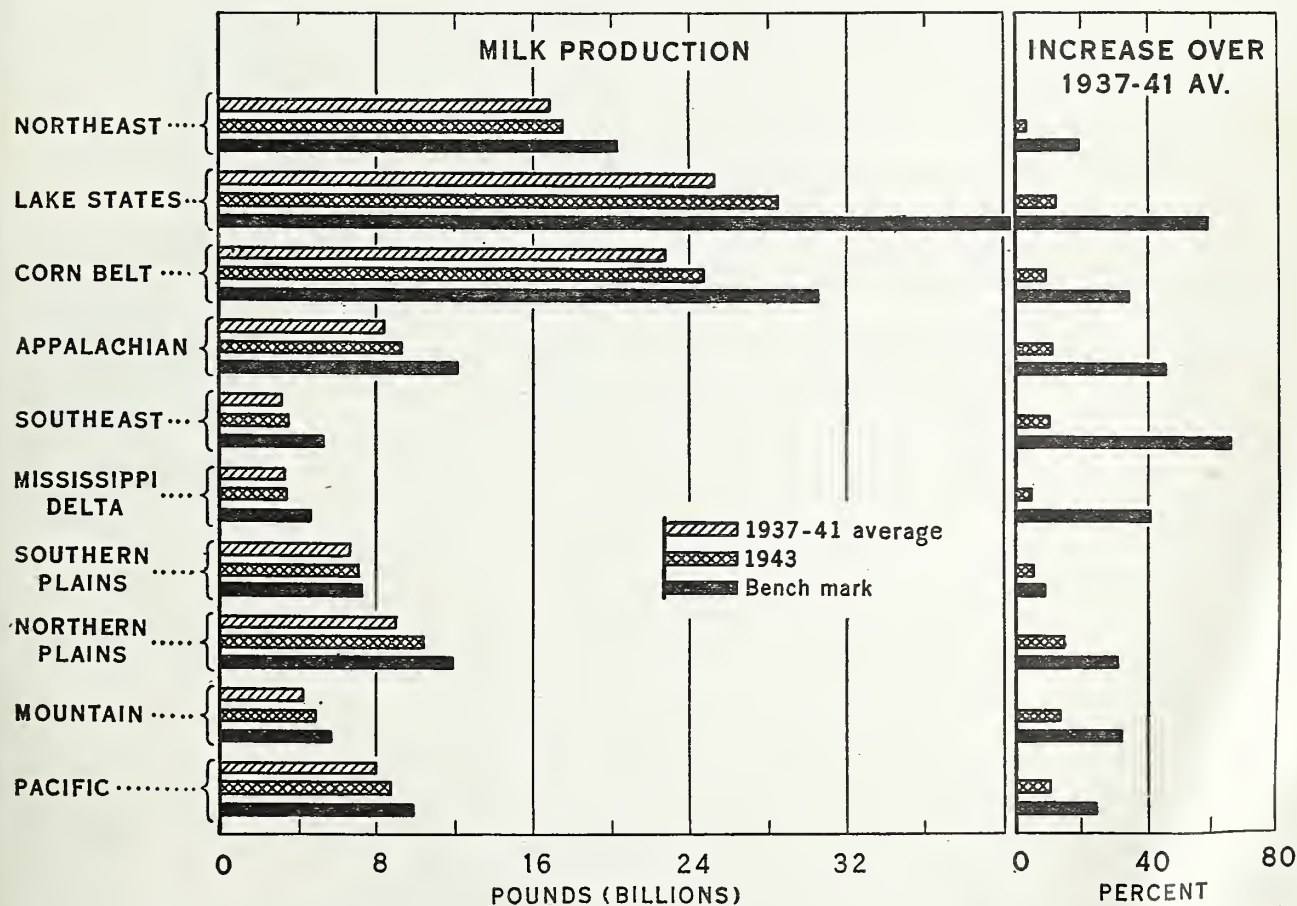


FIGURE 17.—Milk production on farms, by groups of States. Postwar bench mark, with comparisons.

than was produced in 1943. The number of milk cows would be increased to 28.7 million head, or nearly 22 percent above the 1937-41 average. Milk production per cow, at 5,165 pounds, would be nearly 13 percent above the prewar average of 4,577 pounds.

The bench-mark production of milk on farms is 148.2 billion pounds. With a non-farm production of 2.8 billion pounds—milk produced largely by town and village families that maintain a cow or two principally for family use—the total production of milk would be 151 billion pounds. Assuming that 4.1 billion pounds would be used by calves on farms, about 147 billion pounds would be available for human consumption. With a population of 144 million people, the per capita consumption of milk and dairy products would be about 1,020 pounds of milk on a whole-milk equivalent basis. This would be 26 percent above the prewar (1937-41) per capita consumption of 809 pounds, and 31 percent higher than the average civilian consumption of 776 pounds for 1943 and 1944.

Considerable variation is found in the rates of increase in the levels of milk production suggested for various groups of States (fig. 17). In the prewar years 60 percent of the Nation's milk supply was produced in the Lake States, the Corn Belt, and the Northeastern States. About the same proportion of the total production suggested as a postwar bench mark would be produced in those three groups of States. But the Lake States, with a bench-mark production 60 percent higher than prewar, would have increased its proportion of the national total from 23 percent to 27 percent. And the Northeastern States, with a bench-mark production only 20 percent above the prewar level, would have decreased its proportion of the total milk supply from 16 percent to 14 percent. The Corn Belt States, producing 34 percent more milk than in the prewar period, would be producing essentially the same percentage

of total production (21 percent) as in 1937-41. Some of the largest percentage increases over war and prewar years would occur in the Southern States where bench-mark patterns would make available additional supplies of forage. Much of these increases however, would be absorbed in home consumption.

The State Committees stress the importance of adopting and expanding the use of improved practices as a part of the adjustments to attain the suggested production. Foremost is the need for the production of more and better legume hay so that cows may be fed all they can consume. Considerable stress is also placed on feeding concentrates to cows in accordance with their production. Emphasis is given to the improvement of permanent pastures through reseeding and the application of lime and commercial fertilizers, and to the development of rotation and supplemental pastures to mitigate the usual severe decline in midsummer milk production.

In all States the importance of improving the productive capacity of individual milk cows is emphasized. To do this the Committees point out the desirability of ascertaining the production of individual cows, culling out the poor producers, and using better herd sires or artificial insemination. Control of diseases, particularly Bang's disease and mastitis, is of great concern in many States. Frequent testing to detect reacting animals, vaccination, careful selection of stock when buying replacements, and the adoption of improved measures of sanitation are advocated for combating Bang's disease. In the control of mastitis, medical treatment and the standardized procedure of fast milking are recommended. It is suggested that adoption of these improved production practices would result in 12.5 percent more milk production per cow with only 6 percent more pounds of concentrates than were fed in 1943.

